DISSERTATION

A STUDY OF EVALUATION AND MANAGEMENT OF PATIENTS WITH HEADACHE

By

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CERTIFICATE

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DECLARATION

I hereby declare that the dissertation titled **A STUDY OF EVALUATION AND MANAGEMENT OF PATIENTS WITH HEADACHE** ,a clinical study submitted by me is the result of original work carried out by myself under the guidance of **Prof.Dr.A.RAVINDRAN,M.S.,D.L.O,** Department Otorhinolaryngology**,**Thanjavur Medical College,Thanjavur.I further declare that the result of research have not been submitted previously by myself or other persons in any conferences or journals.

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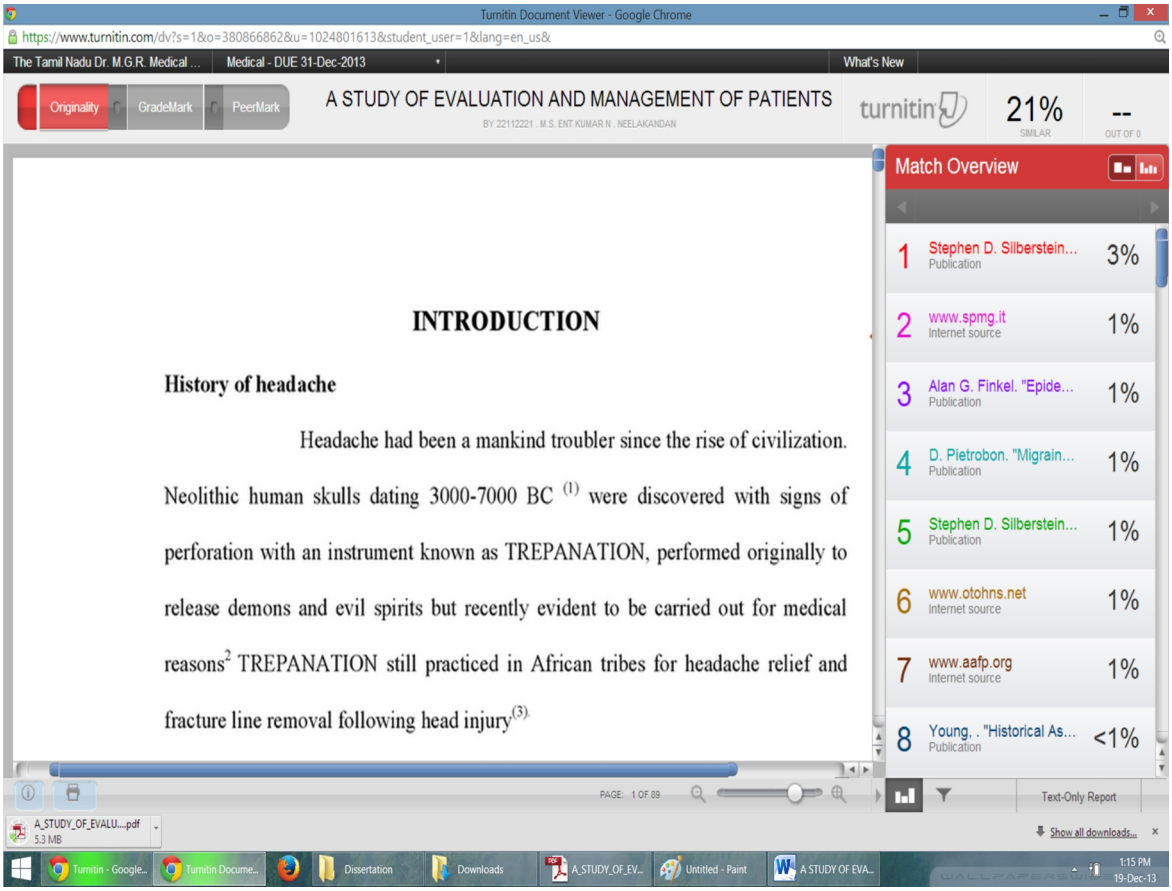
INTRODUCTION History of headache Headache had been a mankind troubler since the rise of civilization. Neolithic human skulls dating 3000-7000 BC (1) were discovered with signs of perforation with an instrument known as TREPANATION, performed originally to release demons and evil spirits but recently evident to be carried out for medical reasons2 TREPANATION still practiced in African tribes for headache relief and fracture line removal following head injury(3). In ancient Egypt Headache prescriptions were written on papyrus. The Eber papyrus dated circa 1200 BC describes migraine, neuralgia and shooting pains(4)in medical documents from 2500 BC. Compression and cooling the scalp (5) method...



ABSTRACT

Aim- To study about clinical evaluation of headache, its management and about effectiveness of radiological investigations to find out type of headache.

Study Design-Prospective Clinical Study

Methodology- Patients presenting with headache for more than 1 month of all age groups and sexes were selected. Selected patients were subjected to detailed history and complete examination according to a defined proforma. According to clinical diagnosis,radiological investigations are done.Patients with Migraine and Tension headache features were consulted with neurologist and psychiatrist.Treatment is given accordingly.

Results-Most common type of headache is Tension headache. Majority of the patients were of age group 21-50 years and it is more predominant in males. Next Most common type of headache is migraine. It's is more common in females in 1:2 ratio. Third common type of headache is sinus headache and it is more predominant in males. Headache was localized more than one site (59%) in majority of cases and 22% in forehead region. Patients who were having mucosal contact points headache, underwent FESS and 88.89% of patients were relieved from headache. T.Propranalol 80 mgs and Amitriptyline 50 mgs were given for migraine patients. Most of the patients had subjective relief of headache. Patients diagnosed with tension headache were treated with relaxation techniques, physical exercises and Amitriptyline 10 mgs once a day in evening and most of the patients had subjective relief of headache.

Conclusion- Headache is nearly a universal human experience. The lifetime incidence of headache is estimated to be at least 90%. A carefully taken history is key to accurate diagnosis and the majority of patients will not have sinogenic pain. Accurate diagnosis will be helpful for successful treatment.

Key Words- Tension headache, Migraine, Sinusitis, FESS

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HEADACHE

INTRODUCTION

History of headache-

Headache had been a mankind troubler since the rise of civilization. Neolithic human skulls dating 3000-7000 BC[1] were discovered with signs of perforation with an instrument known as TREPANATION, performed originally to release demons and evil spirits but recently evident to be carried out for medical reasons[2] TREPANATION still practiced in African tribes for headache relief and fracture line removal following head injury[3].

In ancient Egypt Headache prescriptions were written on papyrus. The Eber papyrus dated circa 1200 BC describes migraine, neuralgia and shooting pains[4] in medical documents from 2500 BC. Compression and cooling the scalp [5] method using strip of linen with clay and grains [5,6] were practiced then for headache relief.

Hippocrates 470-410 BC described headache as a shining light in the right eye with violent pain arising in the temples and spreading to the entire head and neck area being triggered by exercise and intercourse[6] and relieved by vomiting.Aretaeus in second century AD discovered migraine headache based on descriptions of migraine by Celsus 215-300 AD .Galen in 200 AD introduced the term 'migraine' from greek word 'hemicrania'.Abbess Hildegrade of Bingen in 12 th century described in terms of migraine aura. Thomas Williams in 1683 described prodromal symptoms associated with migrainous headache.Tissot in 1783[8] differentiated migraine from common headaches stating it to be a supraorbital neuralgia Dubois Raymond,Mollendorf and Eulenberg put forth different vascular theories for migraine[7].

Erasmus Darwin in 18th century believed headache caused by vasodilatation could be treated by centrifugation. In 1778, Fothergill termed migrainous aura as 'fortification spectra'[9,10]. Liveing in 1873 originated the neural theory of migraine in the first monograph entitled On Megrim,Sick-headache,and Some Allied Disorders: A Contribution to the Pathology of Nerve storms William Gowers in 1888 in his neurology textbook, A Manual of the Diseases of the Nervous system recommended lifestyle modifications and use of Gower's mixture [nitroglycerin 1% alcohol solution] and marijuana for treating headaches.

In the line of treatment of migraine, Ergot being the mainstay ,the history accounts since the middle ages in greek and roman ancient writings. Epidemics of ergot poisoning broke out with the disease known as 'Ignis sacer' or 'Holy Fire" or 'St. Anthony's Fire'. The term 'ERGOT' is derived from French word 'argot' meaning 'rooster spur 'describing the small banana shaped sclerotium [11] of the fungus.Louis Rene Tulasne of Paris in 1853 established that ergot is a fungus named 'Claviceps purpurea'with three stages in one life cycleHeinrich Wiggers in 1831 tested ergot in animal models and studied the physiological properties of ergot by the 'rooster comb test'.Woakes in 1868 reported the use of ergot of rye in neuralgia [12] treatment.

Eulenberg of Germany in 1883 ,Thomson of United states in 1894 ,Campbell of England in 1894 and Stevens in 1907[13] reported the use of ergot for migraine early in the history of medical literature. Stoll in 1918 isolated the first pure ergot alkaloid,ERGOTAMINE,used mainly in obstetrics and gynaecology until 1925.Rothlin used subcutaneous ergotamine tartrate, a vasoconstrictor to treat intractable migraine successfully for the first time. John Graham and Harold Wolff

[14] in 1938 proved the vascular theory of migraine stating ergotamine to be a vasoconstrictor.

The modern approach treating headaches began with the development of TRIPTANS by Humprey and his colleagues[15] with the belief that migraine is due to excess serotonin. Sicuteri[16] developed methylsergide ,a serotonin antagonist for migraine and cluster headache prophylaxis.Currently many newer drugs are being tested and developed with concomitant development in basic sciences and the renewed dedication of the clinicians in diagnosis and treatment of headache .

Pain in the head, face, throat, and upper neck is a major cause of care seeking that leads to a primary or secondary referral to otolaryngology. The dramatic advances in epidemiology, diagnosis, diagnostic testing, and treatment of headache have made case finding more satisfying. Evidence-based medicine has presented challenges to long-held beliefs. The most important of these is the recognition that migraine underlies most of the common headaches in clinical practice, including sinus headache. Improvements in diagnosis and treatment have begun to affect care delivery and patient satisfaction. The International Classification of Headache Disorders, 2nd edition [17] divides the head and face pains into primary or secondary disorders. The primary headaches include migraine, tension type, trigeminal autonomic cephalalgias, and other primary headaches, including common or unusual but benign headaches.Secondary headache results from either pathology of the head and its surrounding structures or from systemic disease and effects on cranial nociception. The task of the practicing specialist is to differentiate those headaches requiring urgent attention from the more benign primary headaches.

AIMS AND OBJECTIVES

- To study about clinical evaluation of headache
- To study about effectiveness of radiological investigations to find out type of headache
- To find out the effective management of each type of headache and comparison with previous studies
- Latest trends in management of sinusitis

Anatomy and Pathobiology of Head and Face Pain

The parenchyma of the brain is insensitive to direct noxious stimuli. The trigeminal nerve is the largest of all the cranial nerves. It is a mixed nerve situated on the ventrolateral aspect of the pons. The sensory root conveys impulses from the face and scalp, parts of the external ear and acoustic meatus, the nasal and oral cavities, teeth, temporomandibular joint (TMJ), nasopharynx, and most of the meninges of the anterior and middle fossa. It passes outward and forward over the petrous temporal bone near the apex, extending into the trigeminal ganglion. These pseudounipolar cells pass peripherally to become the three major divisions: ophthalmic, maxillary, and mandibular.

The ophthalmic division is joined by projections of the internal carotid sympathetic plexus and communicates with the oculomotor, trochlear, and abducens nerves as it courses along the lateral wall of the cavernous sinus. The main termination exits the skull through the superior orbital fissure. Other branches include the tentorial, lacrimal, frontal, and maxillary nerves. The maxillary division also carries sympathetic and parasympathetic fibers. Its meningeal branch (middle cranial fossa) travels in the inferior part of the lateral wall of the cavernous sinus to leave the skull through the foramen rotundum, entering the pterygopalatine fossa where it communicates with the pterygopalatine ganglion and enters the orbit through the inferior orbital fissure. The infraorbital nerve then emerges on the face, where smaller branches (inferior palpebral, external and internal nasal, and superior labial branches) supply the lower eyelid, nasal alae, and upper lip. Additional branches go to the zygoma, upper teeth, and gums as the superior alveolar and superior dental nerves. The mandibular nerve exits through the foramen ovale to supply the meninges. It reenters the skull

through the foramen spinosum and travels along the middle meningeal artery to supply the meninges of the middle and anterior cranial fossae, calvaria, and mucous membranes of the mastoid air cells. The buccal nerve innervates the mucous membranes and buccinator muscle. Other sensory branches of the mandibular nerve include the auriculotemporal and lingual nerves, which innervate the TMJ and tongue as well as the dental and mucosal surfaces of the lower jaw.

In the primary head and face pains, abnormal activation of peripheral neurons or central structures results in distinctive pain description, phenomenology, and associations [18]. These may then refer to areas of the head, neck, or face at distance from the area of activation, making diagnosis more challenging. The central connections of second-order sensory neurons of the trigeminal system project to the thalamus and thence to the primary sensory cortex of the parietal lobe. Descending inhibitory projections from periaqueductal gray and paracentral aminergic nuclei modify the pain experience and have become increasingly important in our understanding of the primary headaches.

Table 1-

INTRACRANIAL PAIN SENSITIVE STRUCTURES
Major arteries in brain base
Artery-Internal carotid, Ophthalmic artery
Vertebrobasilar system and major branches
Circle of Willis
Proximal segments of cerebral arteries
Major venous sinuses and adjacent major venous tributaries
Middle meningeal artery

Cranial nerves V, VII, IX, and X
Floor of the pituitary fossa
Upper three cervical nerves (pain referral to occiput)

Secondary headaches rarely are initially seen with distinctive pain characteristics. Many secondary headaches mimic migraine, tension-type, cluster, or short-duration headache. It is therefore necessary for the clinician to assess the patient's history carefully for clues to diagnosis of more urgent or serious headache. Some well-known examples of classical presentations include monocular eye pain with pupillary dysfunction in optic neuritis, sinus disease, or jaw claudication in temporal arteritis.

First-division pain typically refers to the scalp or face anterior to the coronal suture, although it can be felt deep inside the head or in the occiput. Lesions in the middle fossa can refer to the apex of the head or in the midnasal bridge, as can pain arising from the deep ethmoid or sphenoid sinuses or the sella turcica. With lesions involving posterior fossa structures, pain is referred to the back half of the head and upper neck. Pain coming from diffuse intracranial disease, including meningitis, can mimic primary headache of the tension type, or more severe diffuse head pain with meningismus.

Extracranial Patterns of Referral-

Orbital pathology usually is first seen with monocular pain and often has associated visual disturbances. Unilateral eye pain should be considered an ophthalmologic emergency. Sinus pathology has historically been associated

with distinctive patterns of referral. Disease in the frontal sinus may appear with frontal pain or pain radiating behind the eyes or to the vertex. Maxillary pain is typically infraorbital in location, and ethmoidal disease appears between and behind the eyes or to the vertex, as does the sphenoid. In our experience,

mastoid disease may first be seen as unilateral occipital pain or with cluster-like headache. Other mimics of cluster headache (CH) include carotid disease and dissection. The TMJ and the muscles of mastication can be a source of pain that radiates to the head and the ear. The TMJ and its articulations are innervated by the auriculotemporal nerve as it passes behind the condyle and then upward in front of the ear. Pain can be reported as a diffuse temporal headache or as ipsilateral ear pain. Tooth pain is poorly localized and can be confused with disorders occurring outside the mouth. It can appear as diffuse facial or ear pain. Pulpal death results in localization of the pain to the offending tooth. Cervical disease including spondylosis can be seen with unilateral head pain, sharing features of migraine. Vascular structures of the anterior neck can cause pain that radiates into the lower face. A clinically recognized complication of carotid dissection is cluster-like headache and complete or incomplete Horner syndrome.

Headache Diagnosis and Testing-

A detailed history and physical examination are the keys to efficient assessment of headache patients . Particular attention should be paid to pain characteristics, including rate of onset, rate of offset, intensity, quality, location, duration, and response to medications.

Pain localization may be helpful, although referral patterns are not diagnostic of secondary headaches in general. Establishing the temporal profile, including duration, is essential to good diagnosis. Exacerbating and relieving factors and associated nonpainful symptoms should be noted. In primary care practice, 94% of patients with recurrent headache have migraine or migrainous headache [(19).] Migraine is most frequently misdiagnosed as sinus headache or tension-type headache [(20).] In the emergency department, 95% of patients with a headache have migraine [(21).] Recognized features of clinical history and physical examination can alert the physician to underlying organic diseases of a more serious nature.

Magnetic resonance imaging (MRI) is the gold-standard radiographic study for headache diagnosis. Only 0.18% with migraine and a normal neurologic examination will have significant pathology. Computed tomography (CT) is still the test of choice for acute, thunderclap, or new-onset headache in the emergency department to rule out hemorrhage. CT does miss multiple vascular malformations including aneurysms; meningeal, pituitary, and intracranial neoplasm; Chiari malformations; posterior fossa tumors and malformations; paranasal sinus disease; encephalitis; meningitis; and cerebritis. Low or high cerebrospinal fluid (CSF) pressure with headache and complications also may be missed with routine CT scans. Electroencephalography (EEG) has minimal sensitivity for headache diagnosis. Lumbar puncture is indicated for acute headache with a negative CT and for chronic headache in which infection or pressure measurement is essential.

Table 2-

DIAGNOSIS HISTORY IN PATIENTS WITH HEADACHE

History of present illness

Age at onset, progression to the present
Frequency timing and duration of attacks
Quality of the pain, including severity
Associated symptoms including warning symptoms or aura
Precipitating and/or relieving factors including medications

Medical history

Prior surgery or trauma to head or neck Allergies, diabetes, hypertension, psychiatric illness, recurrent infections, Current medications including over-the-counter analgesics, birth control pills, herbal medications, topical agents

Family and social history

Migraine, tension or sinus headache, psychiatric illness, substance abuse, suicide
Cerebrovascular or cardiovascular disease, especially young
Marital status and occupation
Stress factors
Tobacco, alcohol, and drug use

Review of systems

Changes in weight, appetite, sleep, mood, or somatic sensation including pain and limitations to activity or range of motion

Trauma including traumatic life events

Symptoms suggestive of endocrine disturbance

Table 3-

DIAGNOSIS CLINICAL FEATURES SUGGESTING SERIOUS CAUSE FOR HEADACHE

Crescendo headache in any age group
Headaches exclusively triggered by cough or exertion
Early-morning headache
Vomiting without significant premonitory nausea
Projectile vomiting or persistent hiccoughing
Associated fever, stiff neck, lethargy, confusion
Associated seizures, syncope, diplopia, visual obscurations
Sudden-onset of worst headache of my life,Known malignancy or chronic infection including human immunodeficiency virus,Endocrine disturbance of any kind,Focal neurologic symptoms or signs,Papilledema, visual field loss
Temporal artery tenderness, thickening

Classification

Understanding headache and facial pain is essential to facilitate diagnosis and treatment. To this end, definitions and features of clinical syndromes were organized by the Headache Society- International.

This classification, with inclusion of diagnostic criteria for headaches, cranial neuralgias and facial pain, was created in 1988 and has facilitated the diagnostic approach and management of craniofacial pain across many medical fields.

Table 4-

Headache Society Classification of Headache and Facial Pain

Migraine type

Without aura (common migraine)

With aura (classic migraine)

With prolonged aura (complicated migraine)

Ophthalmoplegic

Retinal

Tension type

Episodic (muscle contraction headache)

Chronic (chronic daily headache)

Oromandibular dysfunction (myofascial pain dysfunction syndrome) (temporomandibular joint pain dysfunction syndrome)

Cluster (Horton's cephalalgia)

Post-traumatic headache

Vascular intracranial disorder

Transient ischemic attack-associated headache

Haematoma -Intracranial

Haemorrhage -Subarachnoid

Acute arterial hypertension

Pheochromocytoma

Malignant hypertension (accelerated)

Pre-eclampsia and eclampsia

Non-vascular intracranial disorder

Pseudo tumor cerebri

Post-lumbar puncture headache

Cerebrospinal fluid fistula headache

Intracranial infection

Meningitis

Brain abscess

Subdural empyema

Intracranial neoplasm

Headache from substance exposure or withdrawal

Acute exposure

Nitrate or nitrite-induced headache (hotdog headache)

Monosodium glutamate-induced headache (Chinese restaurant syndrome)

Carbon monoxide-induced headache

Alcohol-induced headache

Chronic exposure

Ergotamine-induced headache

Analgesics abuse headache

Oral contraceptives use

Acute withdrawal

Alcohol (hangover)

Chronic withdrawal

Analgesics

Ergotamine

Caffiene

Narcotics

Headache with extracranial infection

Viral

Bacterial

Headache from metabolic disorder

Hypoxia

High-altitude headache

Sleep apnea headache

Hypoglycemia

Headache or facial pain associated with craniofacial disorder

Cranial disorder

Osteomyelitis

Multiple myeloma

Paget's disease

Cervical spine disorder (cervicogenic headache)

Eye disorder

Acute glaucoma

Refractive errors

Sinonasal disorder

Acute sinus headache

Rhinogenic headache

Odontomandibular disorder

Periodontis

Pulpitis

Glossitis (burning mouth syndrome)

Temporomandibular joint disease

Cranial neuralgia

Compression of cranial nerve or cervical root 1, 2 or 3 Inflammation of cranial nerves

Acute herpes zoster

Chronic postherpetic neuralgia

Tolosa-Hunt syndrome

Gradenigo's syndrome

Trigeminal neuralgia (tic douloureux)

Compression of trigeminal ganglion

Vascular Tumor

Aneurysm

Multiple sclerosis

Glossopharyngeal neuralgia

Occipital neuralgia Anesthesia

dolorosa

Postsurgical after trigeminal rhizotomy

Unclassifiable pain -atypical facial pain

Epidemiology-

Eighty to ninety percent of world population have headache in a lifetime. 78% is lifelong prevalence of tension-type headache. Compared with this is the less than 1% likelihood of serious intracranial pathology including tumors, and the 15% lifetime prevalence of acute nasal or sinus headache. A patient seeking care for recurrent or episodic headache has an extremely high (94%) likelihood of having migraine[22].Two-thirds of this care is given in the primary setting[23]. Nevertheless, because of cranial autonomic symptoms or seasonal periodicity associated with some of the primary headaches, the specialist in allergy or diseases of the ear, nose, and throat may be the first contact a patient makes in the search for good care and correct referral. In addition, serious pathology of the skull, sinuses, or upper dental ridge may be first seen with face and head pain, making the otolaryngologist the most important arbiter of diagnosis and decision making.

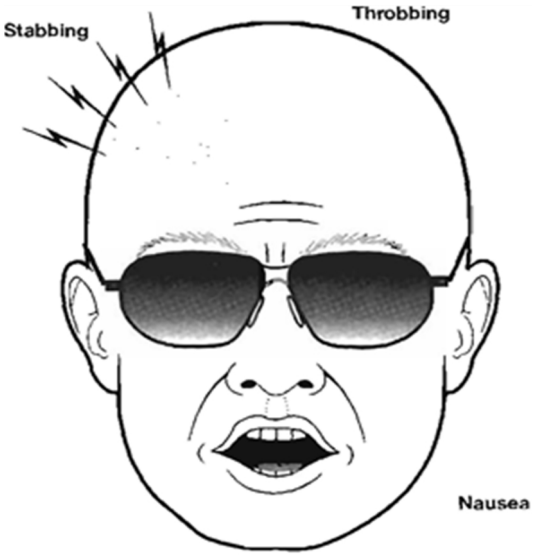
Primary Headaches-

Migraine-

Migraine is a disabling disorder with a 1-year prevalence of 18% among females and 6% among males in world [24]. Fifty-two percent of migraineurs remain undiagnosed. Fifty percent of migraineurs miss work 2 days per month and have reduced work efficiency for 6 days per month. Two-thirds of migraineurs recognize that this disorder has adversely affected their family life [25].Migraine was considered a vascular disorder until the mid-1980s, when Moskowitz proposed the Trigeminovascular Theory of migraine. By using animal

models, he demonstrated that electrical stimulation of the trigeminal nucleus caudalis in the pons causes plasma protein extravasation from Dural blood vessels. He concluded that the generation of migraine depended on serotonin mediated increases in neuronal excitation, not primary vascular reactivity. In humans, trigeminal activation results in the expression of recognized inflammatory and pro-nociceptive substances, including calcitonin gene related peptide, neurokinin A, and substance P. Genetic studies suggest autosomal dominant transmission with more than 70% of patients having a first-degree relative with migraine. Familial hemiplegic migraine localizes to defects on chromosome 19p13, which encodes voltage-gated P/Q-type calcium channels, and to the ATP1A2 gene on chromosome 1, resulting in dysfunction of the Na-K pump. Genetic polymorphism studies have implicated alterations in the gene for serotonin receptors in migraine without aura and in dopamine receptors in migraine with aura.

Figure 1- LOCATION OF HEADACHE IN MIGRAINE



[Supraorbital,Facial ,Frontal, Parietal,Occipital ,Temporal pain,photophobia,Pallor or flushing]

Migraine with and without Aura-

Migraine aura occurs consistently in 15% to 25% of migraineurs. Aura is a localizable and fully reversible neurologic deficit preceding head pain, which results from progressive neuronal dysfunction spreading across the cerebral cortex. Studies including single-photon emission computed tomography (SPECT), positron-emission tomography (PET), functional MRI, magnetic resonance spectroscopy (MRS), and magneto encephalography have bolstered this hypothesis. Serotonergic, noradrenergic, and dopaminergic pathways; hormonal regulation, especially estrogen; and hypothalamic and deep brainstem structures are involved in the ultimate expression of migraine. Thus migraine can be described as neuronal sensitization and neurogenic inflammation in a milieu of multiple neurobiologic influences. The goal of migraine treatment is to attenuate neuronal irritability and neurogenic inflammation while targeting central mechanisms to abort or prevent headaches and associated disability.

Figure 2- ***Alice in Wonderlan syndrome.*** **This shows the sense of being too large for one's surroundings**

Table 5-

DIAGNOSIS ICHD CRITERIA FOR MIGRAINE

1.1 Migraine without aura

A]Headache attacks lasting 4 to 72 h (untreated or successfully treated)

B]Headache has at least two of the following characteristics

Unilateral location

Pulsating quality

Moderate or severe intensity

Aggravation by or causing avoidance of routine physical activity (e.g., walking or climbing stairs)

C]During headache, at least one of the following:

Nausea or vomiting

Photophobia and phonophobia

D]Not attributed to another disorder

1.2 Migraine with typical aura

A]At least two attacks

B]Aura consisting of at least one of the following but no motor weakness:

Fully reversible visual symptoms including positive features (e.g., flickering lights, spots, or lines) and/or negative features (i.e., loss of vision)

Fully reversible sensory symptoms including positive features (i.e., pins-and-needles) and/or negative features (i.e., numbness)

Fully reversible dysphasic speech disturbance

At least two of the following:

Homonymous visual symptoms and/or unilateral sensory symptoms

C]At least one aura symptom develops gradually over 5 min, and/or different aura symptoms occur in succession over 5 min

D]Headache fulfilling criteria for 1.1 Migraine without aura begins during the aura or follows within 60 min

E]Not attributed to another disorder

Migraine and Sinus Headache-

Among patients diagnosable with migraine, only 19% identify their diagnosis correctly. Twenty-eight percent of patients report sinus as their cause for headache, and 34% called them tension. In one study of migraineurs, 42% received an incorrect diagnosis of sinus headache [(23)]and 32% reported being told they were tension type.

The potential confusion with sinus headache stems from long-held beliefs about location of pain. Nasal, paranasal, or periorbital pain merges with temporal throbbing. During migraine attacks, autonomic symptoms occur in 46% [(26),] and two-thirds of patients may describe nasal stuffiness or drainage [(27).] Eighty

percent of patients complaining of recurrent sinus headache have migraine, and the response to specific migraine therapies, including the triptans, is excellent. Headache is a minor criterion of the American Association of Otolaryngologist Head and Neck Surgeons (AAO-HNS) criteria for sinusitis ,making it more important for the otolaryngologist to recognize the episodic, recurrent, and treatable migraineur before assessing for definitive or ongoing treatment [27].

Migraine Treatment: Acute and Preventive-

Treatment of migraine begins with clear diagnosis and knowledge of its pathophysiology. Acute treatment of headache should be stratified to the level of disability in the patient. Nonspecific therapies include nonsteroidal antiinflammatory drugs (NSAIDs), sympathomimetic including caffeine, and analgesics. Frequent use of many of these has been associated with substance-withdrawal headache and analgesic rebound, now termed medication-overuse headache. For moderate to severely disabling headache, specific medication should be used. The most specific of these are triptans. They bind to serotonin receptors (5HT1D/B) on trigeminal nerve endings to halt neurogenic inflammation in addition to binding to dural blood vessels to reduce painful swelling. No class effect of triptans exists, and if one is not effective, then another may be tried. Side effects include chest symptoms, nausea, and asthenia. They are contraindicated in patients with uncontrolled hypertension or a history of cerebral or coronary artery disease but are generally extremely safe and effective. A growing body of evidence supports early treatment during the mild phase of migraine headache. Cutaneous allodynia, a lowering of pain thresholds and increased sensory awareness of the head, neck, and extremities during the full-

blown migraine attack, may be a marker for response to specific migraine medications. Triptans are more costly than nonspecific therapy, but economic analyses point to cost savings and decreased disability when triptans are used in patients with moderate to severe headache [28].

Table -6

Almotriptan	12.5 mg	Pills
Eletriptan	20/40 mg	Pills
Frovatriptan	2.5 mg	Pills
Naratriptan	2.5 mg	Pills
Rizatriptan	5/10 mg	Pills/melts
Sumatriptan	50/100 mg	Pills
	5/20 mg	Nasal spray
	6 mg	Injection
Zolmitriptan	2.5/5 mg	Pills and melts
	5 mg	Nasal spray
Dihydroergotamine	1 mg	IV/IM
	4 mg	IN

Start low and increase dose slowly by using long-acting preparations or once-daily dosing to enhance compliance.

- Use an adequate trial of 2 to 3 months at an appropriate dosage.
- Avoid interfering, overused, and contraindicated medications.
- Evaluate therapy with regular follow-up, including headache calendars.

- Continue for 6 to 24 months.
- Attempt to taper and discontinue when headaches are well controlled.
- Be aware of drug interactions.
- Give special concern for women during childbearing years.

Tension Type Headache

Episodic tension-type headache is the most common head-pain syndrome. It is characterized by a gradual onset of bilateral, nonthrobbing, aching pain over the frontal and temporal regions, often spreading to involve the occipital, posterior cervical, and trapezius musculature. The pain worsens as the day goes on. Associated symptoms such as nausea and vomiting are rare, and patients usually can continue activities of daily living during the headache. The headaches are not seasonal and do not wake the patient from sleep. Adults rarely seek medical care for occasional tension headaches [(29)].Chronic tension-type headache is responsible for 15% of daily headaches. The patients seeking medical care for chronic, persistent, or recurrent headaches most often are first seen with transformed migraine. The most commonly encountered problem in this group is analgesic rebound headache and depression. Combination therapy, including limited NSAIDs and antidepressants, is the most effective treatment.

The causes of tension-type headache are poorly understood despite its well-described symptom profile. No firm evidence exists for the role of muscle contraction or spasm in these patients. Recent experimental evidence implicates dopamine, endocannabinoids, and the endorphins/ enkephalins in tension-type headache. Muscle relaxants, massage, and biofeedback can be very effective in some patients with the typical clinical features, whereas other patients

require antiinflammatory medications, antidepressants, or both.

Figure 3-TENSION HEADACHE

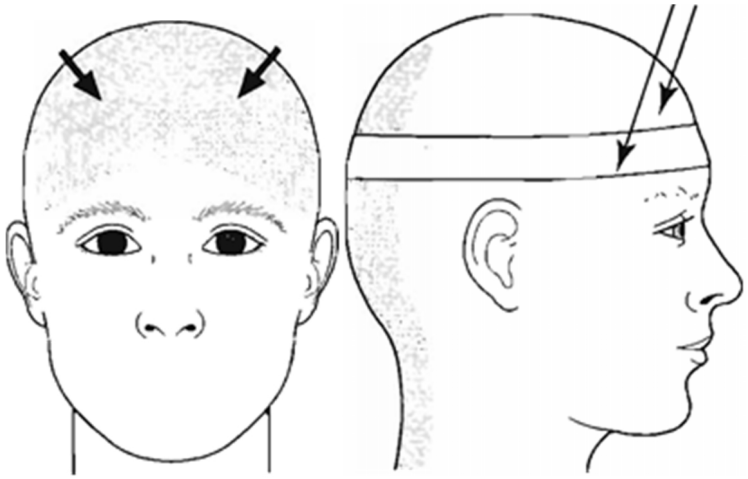


Table 7-

Diagnostic Criteria for Episodic Tension-Type Headache

A. At least 10 previous headache episodes fulfilling criteria B through D;
Number of days with such headaches: less than 180 days per year
B. Headache lasting from 30 minutes to 7 days
C. At least two of the following pain characteristics:
1. Pressing or tightening (nonpulsating) quality
2. Mild or moderate intensity
3. Bilateral location
4. No aggravation by walking stairs or similar routine physical activity
D. Both of the following:
1. No nausea or vomiting (anorexia may occur)
2. Photophobia and phonophobia are absent, or one but not the other is present.

Trigeminal Autonomic Cephalalgia Including Cluster Headache-

Uncommon and unfamiliar except for CH, the trigeminal autonomic cephalalgias (TACs) typically are initially seen with shorter-duration, focal, and side-locked head pain associated with ipsilateral autonomic features. This suggests significant but abnormal activation of the cranial autonomics and trigeminal-parasympathetic. These may mimic pathology in orbital structures or the sinuses. For this reason, delay in correct diagnosis of CH may range from 7 to 16 years. Early recognition spares the patient years of untreated and often extremely severe pain. These groups of headaches appear in episodic and chronic forms. All forms of the TACs have been associated with trigeminal neuralgia in case reports and case series [30].

Cluster Headache-

CH is not common disorder. It is abrupt in onset , unilateral, blinding, and less-duration attacks .Among the primary headaches, CH pain is the most severe pain, and the accompanying autonomic features may confuse the diagnosis with pathology in sinuses orbital or periorbital areas. Awakening the patient from sleep at a time when dreaming is presumed to occur leads to sleep evaluations, and CH's seasonal or circannual occurrence implies botanical allergy. Secondary causes of CH can include cranial, cervical, or vascular disorders. The carotid artery, cavernous sinus, and various brain structures, including the periaqueductal gray matter, appear to participate in pain generation and modulation associated with this disease [31].

CH occurs in 0.2% to 0.6% of the population, with a male-to-female ratio of 4:1 to 12:1. Recent studies have suggested that although the gender

ratio of CH may be changing, the overall prevalence is stable for the last 3 to 4 decades. Genetic studies suggest autosomal dominant transmission with a low frequency of the susceptibility allele. During active periods, most commonly in the spring and autumn, clusters of individual headaches lasting between 30 and 180 minutes occur daily, with episodes lasting weeks or months. The majority of patients have episodic, recurrent attacks of unilateral, temporal, or periorbital pain associated with autonomic features including rhinorrhea, ptosis, lacrimation, miosis, and ipsilateral stuffiness. In a chronic disorder, daily attacks of typical CHs persist.

Episodic cluster is gaps in time between painful periods. Chronic cluster is unremitting. Episodes occur once or twice per year in 75% of patients, with a typical episode lasting approximately 2 months. Attacks typically last between 72 and 159 minutes, with attack frequency between two per week and five per day, and 73% of patients have a predictable onset of attacks at night. Of episodic patients, 43% describe a seasonal onset, and chronic sufferers also describe seasonal exacerbations.

Figure 4-CLUSTER HEADACHE

A patient of Bayard T. Horton. Horton is called as ‘father of cluster headache’. He described features of cluster headache and he used oxygen for treatment. The patient has some of the typical ‘leonine facies’ features recognized in cluster headache: deep nasolabial folds, peau d’orange skin and squared jaw.

Table 8-

DIAGNOSTIC ICHD CRITERIA FOR CLUSTER HEADACHE

Cluster headache
A]At least five attacks fulfilling criteria
B]Severe or very severe unilateral orbital, supraorbital, and/or temporal pain lasting 15 to 180 min if untreated
C]Headache accompanied by at least one of the following:
Ipsilateral conjunctival injection and/or lacrimation
Ipsilateral nasal congestion and/or rhinorrhea
Ipsilateral eyelid edema
Ipsilateral forehead and facial sweating
Ipsilateral miosis and/or ptosis
A sense of restlessness or agitation
D]Attacks have a frequency of from one every other day to eight per day
E]Not attributed to another disorder

Episodic cluster headache

A]Attacks fulfilling criteria A to E for 3.1 Cluster headache

B]At least two cluster periods lasting 7 to 365 days and separated by pain-free remission periods of 1 month

Chronic cluster headache

A]Attacks fulfilling criteria A to E for 3.1 Cluster headache

B]Attacks recur over >1 year without remission periods or with remission periods lasting <1 month

Paroxysmal Hemicrania-

These consists of daily attacks of severe unilateral orbital, supraorbital, or temporal pain. The attacks are shorter, lasting 2 to 30 minutes, and they occur 5 or more times per day. They are accompanied by ipsilateral eye tearing and redness, eyelid edema, ptosis, nasal congestion or rhinorrhea, or a combination of these. A major difference from CH is the female predominance and the diagnostic response to therapeutic doses of indomethacin, up to 150 mg/day. The chronic form, which lasts more than 1 year without remission, was first to be recognized, although episodic cases do occur.Paroxysmal hemicrania is rare and appears in the middle years (mean, 33 years; range, 3 to 81 years). In patients presenting with this unusual short duration headache, MRI is indicated. In the presence of a normal study, a diagnostic trial of indomethacin should be given.

Short lasting Unilateral Neuralgiform Headache Attacks with Conjunctival Injection and Tearing (SUNCT)-

This rare syndrome is a diagnosis of exclusion. SUNCT is seen initially at a mean age of 50 years (range, 23 to 77 years). Attacks of strictly

unilateral orbital, supraorbital, or temporal pain lasting 5 to 240 seconds occur with a frequency from 3 to 200 per day. They are accompanied by prominent lacrimation and redness of the ipsilateral eye. Workup includes MRI scan with MR angiography (MRA). No adequate therapy has been found for the treatment of SUNCT. Trials have included carbamazepine, valproate, lamotrigine, azathioprine, prednisone, nifedipine, and oral sumatriptan. It can be worsened by verapamil and omeprazole. Mimics include vascular and compressive lesions affecting the trigeminal nerve and posterior fossa or craniocervical lesions or malformations.

Other Primary Headaches

This collection of odd headaches includes many paroxysmal head pains that occur spontaneously and often in odd circumstances.

Primary stabbing headache or ice-pick pains are transient and localized stabs of pain in singles or series, predominantly in the distribution of the first trigeminal division, lasting up to a few seconds in the absence of another disorder. They are more common in patients with migraine or CH.

Cough headache is sudden and may be instantaneous or last up to 30 minutes. It is brought on by coughing, straining, or Valsalva maneuver and requires MRI scanning because it may be present with Arnold Chiari type I malformations, carotid or vertebrobasilar disease, or aneurysms.

Primary exertional headache is a pulsating headache lasting from minutes up to 2 days and is predictably precipitated by exercise. Heavy exertion, such as that done by weight-lifters also is recognized as a cause. Workup is the same as for cough headache. Indomethacin may be used in both of these.

Headache associated with sexual activity occurs during preorgasm and usually is a dull ache involving the head, neck, and jaws, whereas

orgasmic headache is explosive, occurs at orgasms, and with its first occurrence mandates CT scan to rule out subarachnoid hemorrhage. Prevention of headache may be attempted by using indomethacin, triptans, or standard antimigraine drugs.

Hypnic headache is a rare headache that occurs only during sleep, lasts 15 minutes or more, and first occurs after age 50 years. Unlike CH, no autonomic features are present. Caffeine and lithium are effective treatments.

Thunderclap headache resembles subarachnoid hemorrhage, with sudden onset of maximal pain. CT is mandatory to rule out hemorrhage.

Hemicrania continua is a chronic and continuous unilateral headache of moderate intensity lasting more than 3 months with conjunctival injection, nasal congestion or rhinorrhea, or ptosis/miosis associated with episodic severe pain. It is distinguished by its unique response to indomethacin.

New-daily persistent headache is a difficult and controversial entity in which chronic continuous bilateral headache with a pressing or tightening characteristic and no other classic migraine features starts one day and does not end. The importance of ruling out secondary headaches, including high or low CSF pressure, posttraumatic, infection, or new-onset chronic migraine, is paramount. Adequate treatment is difficult and usually requires specialty referral.

Secondary Headaches-

The International Classification of Headache Disorders recognizes myriad secondary headaches. The majority of these do not have distinctive features of pain in terms of location, duration, or quality, and yet for some, associations make diagnosis and evaluation relatively straightforward. It is recognized that a preexisting primary headache may worsen in frequency or severity in relation to a secondary headache, making diagnosis and treatment more difficult. In cases involving legal complications, this may present additional challenges to the treating clinician. A selected group of these is presented for review, as they may be seen by otolaryngologists.

Headache Attributed to Head and Neck Trauma-

Headache after head trauma becomes a problem most often when it occurs in association with the other manifestations of posttraumatic syndrome: depression, somatic preoccupation, and sleep disturbance. The headache can have phenomenology similar to that of any of the primary headaches. Most patients describe pain resembling tension-type headache. The key to treating this group of disorders, especially in the chronic form, is to assess the patient as if he or she were describing a primary headache and then to treat what you see and hear. The presence of site of injury pain may be particularly difficult, and the treating physician should be vigilant for signs and symptoms of CSF leak, intracranial hypertension, or hydrocephalus.

Treatment consists of reassurance and medications used in primary headache disorders. Unfortunately, acquired headache may not respond with the same predictability as primary headache with the same phenomena. Recognized risk factors for poor outcome include female gender, increased age,

and head position at the time of impact or whiplash.

A fascinating negative correlation exists between severity of head trauma and complications of headache. Chronic posttraumatic headache merges with the posttraumatic syndrome, which includes disturbances of equilibrium, decreased concentration and work ability, depression, sleep disturbances, and irritability. The role of litigation and ongoing legal complications remains controversial. The treating clinician should establish a positive relationship with the patient and assess early in the course the likelihood of recovery. Additional workup and psychological or rehabilitative consultation should be recommended when appropriate.In adolescents and young adults, syncope may accompany the other changes. Episodes of altered consciousness must be differentiated from posttraumatic epilepsy.

Headache and Hematomas-

Headache with epidural hematoma appears rapidly and resolves within 3 months of evacuation. Headache associated with subdural hematoma develops within 24 to 72 hours and may become chronic, even after evacuation. In patients with acute and subacute hematomas, headache occurs in 11% to 53%. After a chronic subdural hematoma, headache may occur in up to 80%. For an elderly patient with new-onset headache, for which the trauma history may not be elicited, the only other clue may be progressive cognitive impairment or subtle neurologic signs. Treatment is symptomatic. Caution should be exercised when using sedating or CNS-active medications in elderly or more-infirm patients with cognitive sequelae.

Postoperative Headache-

Postoperative head and face pain presents great challenges to the

surgeon or consultant. Premorbid primary headache, psychological and surgical complications, or accompaniments of the primary illness or procedure complicate diagnosis, testing, and treatment. Large series of outcome data for routine sinus procedures are not readily available, but serious complications of major surgeries, including combined procedures with neurosurgery, are addressed.

Postcraniotomy Headache-

In approximately 80% of patients undergoing craniotomy for causes other than trauma, head pain develops, with resolution in most. In one-fourth of those surgical patients, more chronic pain may develop. Posterior fossa procedures, especially suboccipital craniotomies and retromastoid surgeries performed for acoustic neuromas, may result in chronic headache. Headache is not a common presenting complaint or symptom of acoustic neuroma. Patients report headache as a chronic complication in 10% of patients who have surgery for an acoustic neuroma (32). Additional complaints include hearing loss, facial weakness, difficulty with balance, orbital pain, and changes in vision. In patients with small tumors, headaches and balance problems predominate. The etiology of the postcraniotomy headache appears to be related to chronic meningeal inflammation, nerve entrapment, neuroma formation, and adhesions. Osteoplastic cranioplasty may reduce the incidence of long-term complications by preventing adhesion of muscle and fascia to the underlying dura.

Headache Attributed to Cranial or Cervical Vascular Disorder-

Headache is not a reliable indicator of ischemic cerebrovascular disease or its results. Approximately one-fourth of patients with cerebral infraction have head pain as a prominent acute symptom, with a greater frequency of occurrence in posterior fossa events. It is a rare consequence of

lacunar infarction or transient ischemic attacks. Headache is more common with intraparenchymal hemorrhages. In those cases, emesis and focal signs of neurologic dysfunction are almost always more prominent.

Acute Subarachnoid Hemorrhageand Thunderclap Headache-

The sudden onset of severe generalized headache, either the first or the worst, should alert the practitioner immediately to the possibility of acute subarachnoid hemorrhage (ASAH) and its dismal outcome, in which 50% may die and an additional 50% of the survivors sustain significant long-term disability. Patients may first be seen with focal and unilateral head pain accompanied by nuchal rigidity, nausea, reduction in levels of consciousness, fever, and rarely cardiac dysrhythmia. Grade 1 ASAH may appear with only mild to moderate headache. Localization of the pain to the face is uncommon, although retroorbital and supraorbital pain is often reported. If acute noncontrasted CT or fluid-attenuated inversion recovery (FLAIR) MRI fails to demonstrate a cause for hemorrhage, then a lumbar puncture is indicated. CSF remains xanthochromic for 2 weeks and is found in 70% of patients with ASAH 3 weeks after hemorrhage has occurred. A third-nerve palsy associated with new-onset or thunderclap headache may be the only sign of impending aneurysmal rupture.

Other vascular malformations, including ateriovenous malformations (AVMs), are less specific and may appear with features of primary headaches, including the trigeminal autonomic cephalalgias. Migraine with aura has been reported in more than half of women with AVMs. A more usual presentation is a seizure or strokelike symptoms.

In arterial dissections, headache is a prominent symptom and may have features of migraine, cluster, or thunderclap headache. In a patient with

retinal signs, acute painful Horner syndrome, or tinnitus, carotid dissection should be suspected, and duplex carotid sonography, MRA, and angiography should be performed urgently. Nonsurgical treatment includes acute heparin followed by 3 to 6 months of warfarin with repeated studies, based on original presentation and recovery.

Cerebral venous occlusions and sinus thrombosis appear with headache as their most prominent feature and should be suspected in patients with prothrombotic conditions including pregnancy and the postpartum, malignancy, and primary or acquired blood diseases.

A last unique headache occurs in pituitary apoplexy, in which patients may initially have severe acute, retroorbital, frontal, or diffuse headache accompanied by nausea and vomiting, fever, diminished level of conscious, hypopituitarism, hypotension, and ophthalmoplegia or impaired visual acuity. MRI is more sensitive for detecting pathology in the area of the sella turcica, and the headache and other signs usually resolve within 1 month. Treatment of the headache should be symptomatic.

Giant Cell (Temporal) Arteritis-

Ninety-five percent of patients with temporal arteritis (giant cell arteritis) are older than 60 years. They appear with complaints of daily moderate to severe headache, scalp sensitivity, generalized fatigue, and feelings of being unwell in nonspecific ways. Unilateral head pain is the rule, but the pain can be bilateral or in the occipital region exclusively, reflecting the highly regional distribution of the disease. Brief episodes of sharp, shooting head pain are sometimes superimposed on a baseline of continuous dull, aching pain. Carotid artery pain and jaw claudication have been reported. Enlarged, thickened, or

tender scalp arteries are found on palpation of the scalp in about half the cases. This condition shares the same pathology as polymyalgia rheumatica, and many patients have overlapping symptoms of extremity pain. The sedimentation rate is elevated in all but the rarest of cases. Although scalp artery biopsies in the region of the pain can confirm the diagnosis, skip lesions do occur, leading to false-negative results. Patients respond with a dramatic reduction in head pain within days of starting high-dose (60 mg) daily prednisone. Lack of a definite clinical response to prednisone within several weeks makes the diagnosis much less secure without a positive biopsy. Prednisone should be tapered after the initial response and the sedimentation rate returns to normal. The disease may last 1 to 2 years, during which maintenance steroids are continued. Visual loss is the major complication and may occur in 30% of untreated cases. Other primary or secondary intracerebral angiitides appear with fewer classic or diagnostic features and are usually accompanied by signs attributable to stroke or more diffuse encephalopathy, although headache occurs in 50% to 80%. In patients with a history of immune or infectious disorders including human immunodeficiency virus (HIV), MRI and MRA may be diagnostic, and spinal fluid may show an increase in white cells and protein.

Headache Attributed to Nonvascular Intracranial Disorders-

Intracranial Hypertension (Pseudo tumor Cerebri)

This syndrome is defined as a daily, diffuse, or constant nonpulsating pain aggravated by coughing or straining in an alert patient with papilledema, an otherwise normal neurologic examination (with the exception of an enlarged blind spot, subtle visual field defect, or sixth nerve palsy), a normal CT scan showing no intracranial mass or hydrocephalus, CSF pressure greater

than 200 mm H2O in the nonobese (>250 mm H2O in the obese), and normal CSF chemistries and cultures. MRI may show Chiari malformation. Intracranial hypertension shares many of the symptoms that accompany a brain tumor, including intermittent headache with variable or increasing intensity. Associations may include predisposing mastoid or inner-ear infection; menstrual irregularity or other endocrine abnormality; recent weight gain; or exposure to steroids, vitamin A, tetracycline, or nalidixic acid. Tinnitus or transient visual obscurations or dimming may be the first clinical symptom.

In a study of 85 patients with transformed migraine or chronic daily headache, 12 patients were found to have increased intracranial pressure, transient visual obscurations, or visual field defects. Their acute headaches responded to ergots, dihydroergotamine or sumatriptan, and preventive medications including acetazolamide or furosemide were effective. I recommend spinal tap for all patients with chronic headache. Treatment includes weight reduction, low-salt diet, and medications directed at reducing CSF production (acetazolamide and furosemide, used separately or together). In chronic cases with visual field loss not responding to diet and medications, CSF diversionary procedures (including lumbo peritoneal or ventricular shunting or optic nerve sheath fenestration) may be necessary. Sleep apnea should be considered, and detailed sleep history and overnight sleep study are strongly recommended.

Headache Attributed to Low Cerebrospinal Fluid Pressure-

Low-pressure headache (LPH) is a symptomatic, secondary headache that can appear hours and days after a surgical procedure, trauma, or spinal tap. In rarer cases, it can occur spontaneously with a long clinical course. Clinical findings can include changes in mental status, cranial nerve dysfunction, and systemic signs

including those complaints typically associated with migraine. Diagnostic findings on MRI consist of diffuse meningeal enhancement with or without Chiari malformation [33].

Spinal tap may reveal low, absent, or negative pressure, with normal fluid more the rule than not. Improvement with epidural blood patch should be expected even if cause is unknown, although repeated treatments may be necessary and incomplete recovery does occur. Spontaneous LPH may occur in connective tissue disorders, and further evaluation should be considered in those with historic or clinical signs of hyperextensible joints, Marfan syndrome, or disorders of the large vessels including carotid or abdominal dissection. Symptomatic treatment with nonspecific analgesics also is indicated. Spinal-tap headache may occur in more than 20%, with the highest incidence in thin female patients. No specific positioning of the patient after lumbar puncture (e.g., supine, prone, or lateral decubitus) has been shown to reduce the occurrence of LPH. Treatment of headache is symptomatic by using oral or intravenous caffeine or standard analgesics. Blood patch performed by a trained anesthesiologist can be curative. In chronic, severe LPH, radionuclide CSF flow studies and MRI or standard myelography should be repeated. LPH represents the outcome of hydrodynamic changes and mechanical forces influencing craniocervical nociception and thus is a true secondary headache, no matter what its features. Headache that worsens with standing and improves with recumbency remains an important consideration in the evaluation of a patient with recent-onset or, in rarer cases, chronic headache.

Infection of the Nervous System

Infection producing headache is usually not a diagnostic

problem with associated systemic illness, stiff neck, and fever. However, nonspecific headache without the other findings can be part of the picture in epidural abscess; fungal, tuberculous, or luetic meningitis; central nervous system acquired immunodeficiency syndrome (AIDS); and meningeal sarcoidosis. Diagnostic lumbar puncture with culture and antigen studies should be performed after CT or MRI studies of the head have ruled out an intracranial mass. Recommended studies include CSF VDRL, cryptococcal antigen, and angiotensin-converting enzyme levels in addition to bacterial, viral, and tuberculosis cultures. AIDS patients may have chronic headache in the absence of meningitis or cerebral abscess. The headache is nonspecific and is most often a tension-type headache. Any patient with immunocompromise and new-onset or subacute progressive headache should be evaluated for infection. The patient with preexisting primary headache and change in pattern, with systemic signs of infection, should be evaluated as if no prior history existed. Nonspecific findings on CSF, including low-grade lymphocytic pleiocytosis or increases in protein, may occur without establishing a firm diagnosis. A rare but benign syndrome of migrainous headache and CSF pleiocytosis has been recognized.

Headache or Facial Pain Attributed to Disorder of Cranium, Neck, Eyes, Ears, Nose, Sinuses, Teeth, Mouth, or Other Facial or Cranial Structures-

This large category of head, neck, and face pains remains controversial, and many specialists in different areas disagree on the history of these disorders. It must be remembered that the majority of patients with these complaints will have primary headache, especially migraine. A detailed history helps to rule out serious pathology of these vital structures. Monocular eye complaints should be urgently evaluated. Acute glaucoma occurs with orbital or

retroorbital pain, increased intraocular pressure and conjunctival injection, clouding of the cornea, or visual disturbance and resolves with treatment. Refractive errors rarely cause adult headache. Ocular inflammatory disease such as iritis, cyclitis, infection, trauma, or granulomatous infiltration may be distinguished by anatomic site, temporal course, or type of inflammation. Resolution follows proper treatment of the underlying cause.

Headaches attributed to disorders of the ear are always accompanied by otalgia. Lesions of the outer ear, tympanic membrane, and middle ear may give rise to primary otalgia and headache. Referred otalgia may result from fifth, seventh, ninth, and tenth cranial nerves, all of which project to the auricle, external auditory canal, tympanic membrane, and middle ear. Evaluation should include physical examination and imaging with MRI.

Sinus Headache-

Sinus headache is accompanied by pain in the face, ears, or teeth accompanied by clinical, endoscopic, and radiologic or laboratory evidence of acute or acute-on-chronic rhinosinusitis that develops simultaneously and resolves within 7 days after infection remits or is successfully treated. Clinical symptoms include purulence in the nasal cavity, nasal obstruction, hyposmia, anosmia, and fever. Chronic sinusitis is not validated as a cause of headache or facial pain unless relapsing into an acute stage (34). Deviation of the nasal septum, hypertrophy of turbinates, atrophy of sinus membranes, or mucosal contact points have not been validated as causes of headache. Disease in the sinuses may appear with frontal pain or pain radiating behind the eyes or to the vertex (frontal), over the antral or temporal area (maxillary), between and behind the eyes or to the temporal area

(ethmoid), or between or behind the eyes or the vertex (sphenoid). In the absence of rhinosinusitis, the recurrent, if even occasional headache sufferer, should be considered for migraine diagnosis, referral, and treatment.

Sinusitis-

Sinusitis is a clinical diagnosis based largely on history and physical examination findings. In 1997, the Rhinosinusitis Task Force of the American Academy of Otolaryngology – Head and Neck Surgery (AAO-HNS) attempted to create a uniform diagnostic paradigm for sinusitis by organizing common sinonasal symptoms and signs into major and minor factors. The presence of two or more major factors or one major and two minor factors is considered suggestive of sinusitis.

Table 9-

Major and Minor Factors Associated with the Diagnosis of Rhino sinusitis

Major factors

- Facial pain/ pressure
- Facial congestion/ fullness
- Nasal obstruction/ blockage
- Nasal discharge/ purulence/ discolored postnasal discharge
- Hyposmia/ anosmia
- Purulence in nasal cavity on examination
- Fever (acute rhinosinusitis only).

Minor Factors

- Headache
- Fever (in non-acute cases)
- Halitosis
- Fatigue
- Dental pain
- Cough
- Ear pain/ pressure/ fullness.

Acute rhinosinusitis is defined, in part, as having a duration of less than or equal to 4-weeks.The next category is “sub-acute”, which is defined by a duration of 4-12 weeks.

“Recurrent acute” is defined as four or more episodes of rhinosinusitis per year with complete resolution between episodes.

Ultimately, however, the common pathway of acute sinusitis is thought to be presence of bacteria in a sinus cavity with an obstructed ostium. In addition, abnormalities of the quantity or consistency of the sinonasal secretions can affect mucociliary clearance and promote bacterial growth.There are multiple factors that can lead to anatomic obstruction of sinus ostia. In most cases, it is edema secondary to inflammation that constricts the small sinus openings in a reversible fashion.

Examples of anatomic obstruction would include septal deviations, polyps, nasal tumors, foreign bodies or post-surgical synechiae. Once the ostium becomes occluded, a local hypoxia develops in the sinus cavity and sinus secretions accumulate. This combination of low oxygen tension and a rich culture medium of secretions allows exponential bacterial growth to occur within the sinus.

Chronic Rhinosinusitis

Rhinosinusitis lasting longer than 12 weeks is classified as chronic. If the symptoms worsen periodically, the AAO-HNS task force separately categorizes, this as acute exacerbations of chronic rhionosinusitis.

Multiple episodes of acute sinusitis themselves may cause scarring and mucosal dysfunction that lead to chronic sinus infections.

Diagnosis of Rhinosinusitis

History: The diagnosis of rhinosinusitis is made difficult by the similarity in symptomatology with allergic rhinitis and acute viral rhinitis. In rhinosinusitis, the most common complaints are nasal obstruction and nasal congestion. A history of "cold" that lasts longer than 10 days especially with green nasal discharge, is suspicious for sinusitis. In acute sinusitis, pain over the maxillary or frontal regions can be a prominent feature in the patients history. Ethmoid sinusitis classically causes pain between or behind the eyes.

Physical Examination

The external findings in sinusitis may be limited and non-specific. Anterior rhinoscopy can reveal mucosal hyperemia and edema of the septum and inferior turbinate. In recent years, there has been tremendous advance in the use of nasal endoscopies for the diagnosis of nasal and sinus disease.

Radiology

Since rhinosinusitis is primarily a clinical diagnosis and considering the improvements in diagnostics brought about by endoscopy, there is a limited role for radiologic studies in the initial assessment of suspected sinusitis.

Certainly there are situations in which imaging studies are needed for evaluation of the sinusitis, for example, clinical sinusitis that fails to resolve with medical therapy or persistent sinus symptoms without endoscopic evidence of disease.

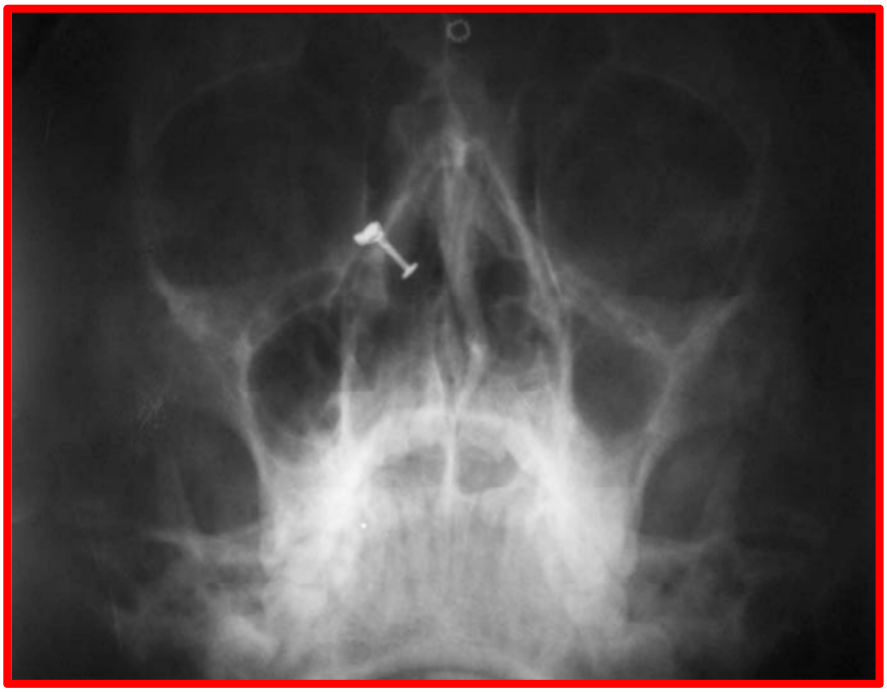


Figure 5 - X-Ray PNS – Female showing spur impinging on to the inferior turbinate which was cause of headache

Figure-6: X-Ray PNS of Child showing anterior deviation of Septum

Figure 7- X-Ray PNS of middle aged male showing DNS and spur with bilateral maxillary sinusitis

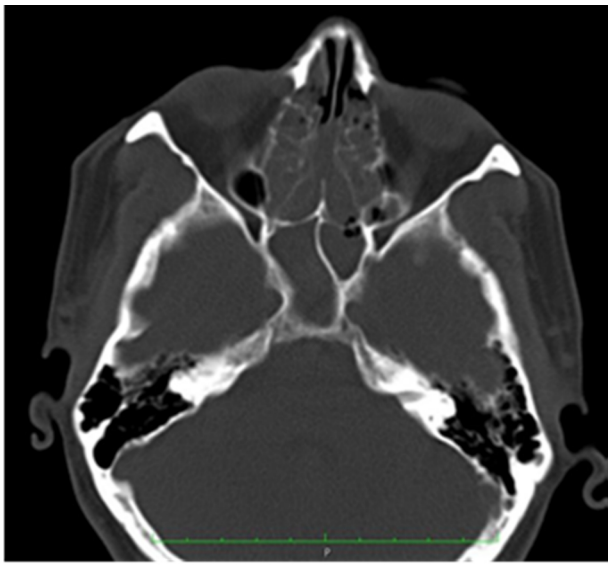


Figure 8 - 58 year old female patient with fever, running nose and sudden onset of headache showing bilateral sphenoid and ethmoid sinusitis.

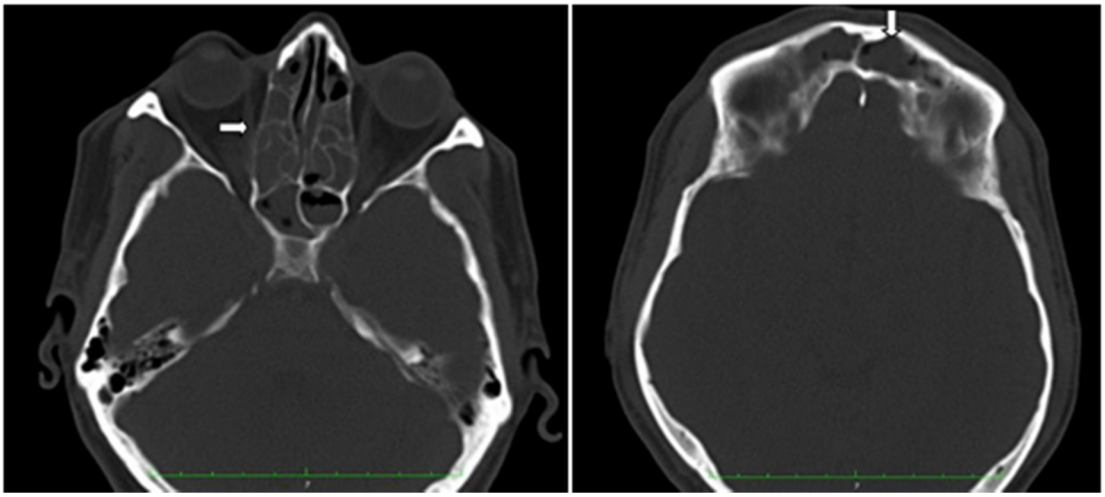


Figure 9 - 61 year old male patient with diffuse headache and fever for one month showing bilateral ethmoid and frontal sinusitis.

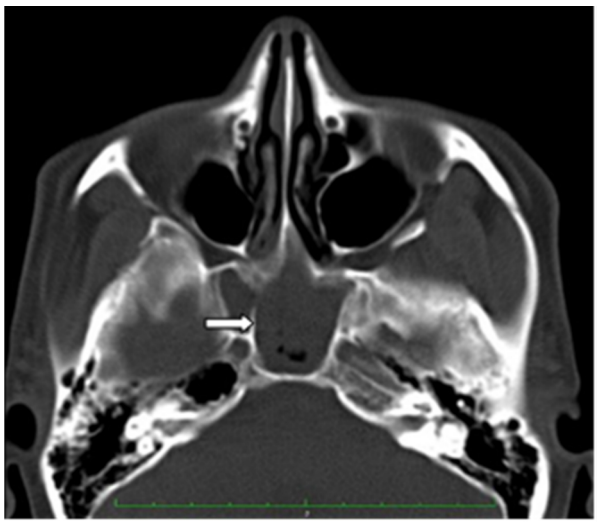


Figure 10 - 23 year old male patient with chronic headache showing bilateral sphenoid sinusitis.

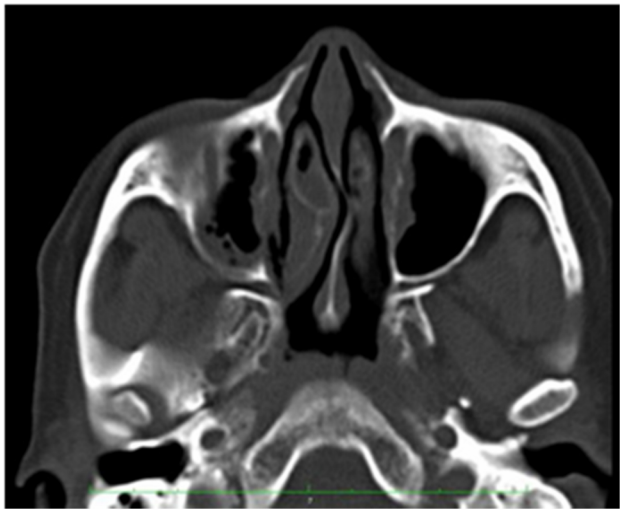


Figure 11-17 year old male patient with chronic diffuse headache showing deviated nasal septum to the left.

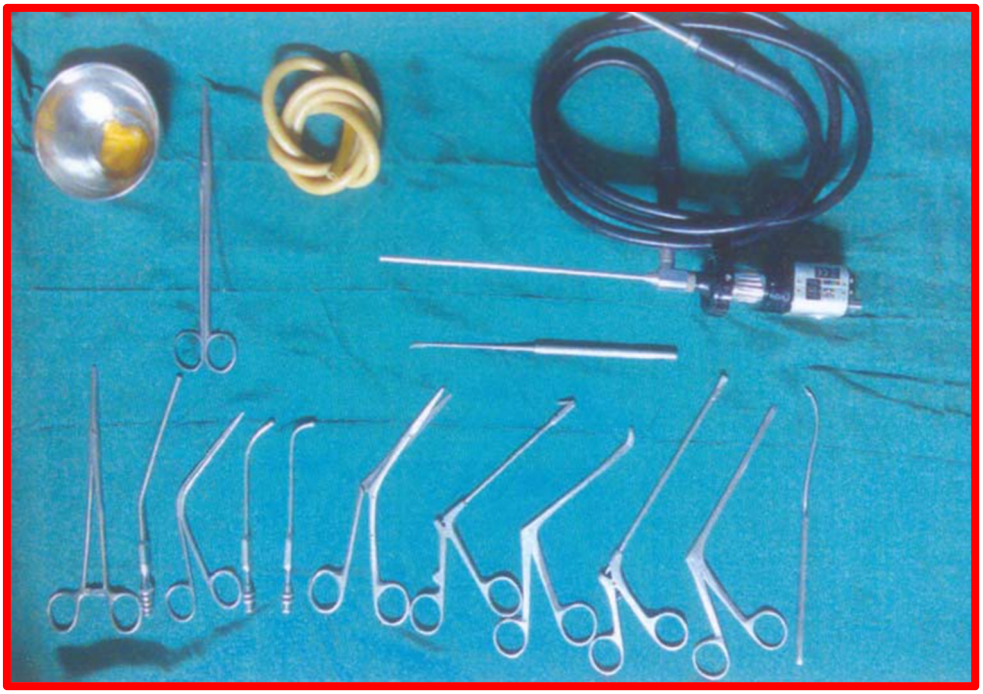


Figure-12: Instruments used for functional endoscopic sinus surgery

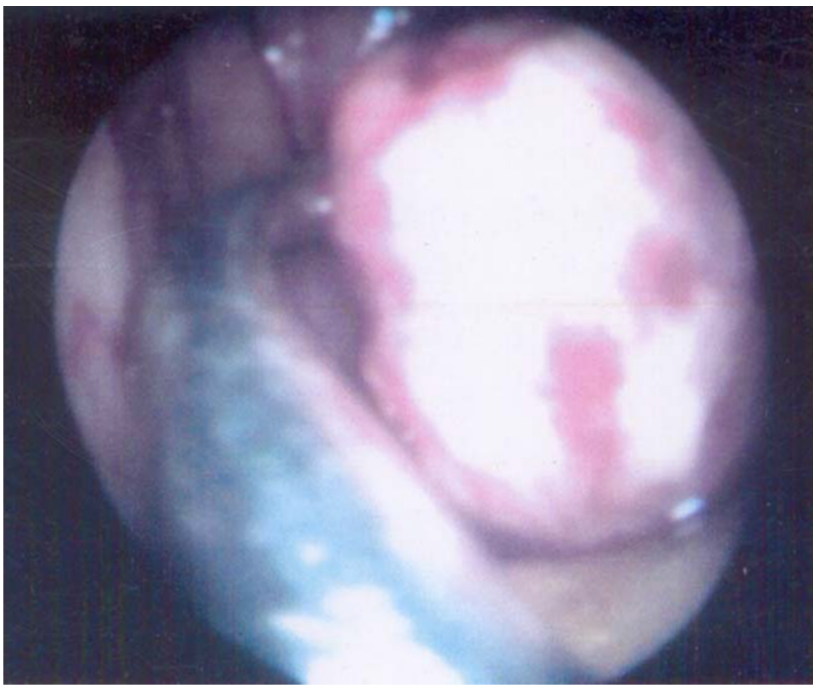


Figure 13- Endoscopic photograph showing suction in the maxillary sinus ostium

Medical Therapy-

Acute Rhinosinusitis-

Once the diagnosis of acute sinusitis is ensured, the goal of therapy is to prevent disease progression and the possibility of serious sequelae[35].In three of four randomized trials reviewed by Hueston et al, the use of antibiotics was supported by a more rapid resolution of symptoms[36].In 1995, sinusitis was the fifth leading diagnosis for which antibiotics were prescribed nationwide[37].

The selection of first-line antibiotics for acute sinusitis is directed by the knowledge of the most common pathogens. Typically, patients will be seen initially by their primary care physician and treated with inexpensive agents like amoxicillin or trimethoprim sulfamethoxazole. The choice of a second line antibiotic is dependent on a number of variables including patient allergies, dosing schedule, proven efficacy, physician experience and the patients previous response history as well as resistance patterns.β-lactam cephalosporin have been the most common secondline agent.

Finally, the newer fluoroquinolones such as levofloxacin, moxifloxacin and gatifloxacin are good second-line agents for patients with activity against *S.pneumoniae*. Symptoms should begin to improve within 48-72 hours and it is important to maintain appropriate follow up to ensure that the complete course of antibiotics is taken.

Chronic Rhinosinusitis-

In chronic sinusitis, the microorganisms primarily involved are coagulase positive and coagulase negative species of staphylococcus and streptococcus. Antibiotic therapy should therefore be directed at these pathogens, although resistance is a constant problem[38].

Surgical Therapy-

Endoscopic Sinus Surgery-

Naumann recognized the relationship between the middle meatal anterior ethmoid complex, termed the osteomeatal unit, and the pathogenesis of maxillary and frontal sinus disease[39].

After decades of painstaking work, Messerklinger demonstrated that relieving the osteomeatal unit of obstruction and inflammation could reverse mucosal disease within the frontal and maxillary sinuses, thus rejecting the 'irreversibility' theory[40].

Even though visualization and instrumentation have improved, endoscopic sinus surgery carries the same risks as traditional sinus surgery.

The majority of dissection is carried out using the 0 degree endoscope because the angulation of the other telescopes can be disorienting. The 30 degree endoscope is usually required for examination and manipulation of the maxillary sinus ostium and frontal recess. The 70 degree endoscope is excellent for viewing the antrum and for identification of an anterior frontal sinus. An important principle in endoscopic sinus surgery is the preservation of the mucosa wherever technically feasible.

Table 10-

Possible Indications for Functional Endosopic Sinus Surgery[35]

- Recurrent acute sinusitis
- Chronic sinusitis
- Nasal polyposis
- Fungal sinusitis
- Barosinusitis

Advanced techniques

- Tumor removal
- Antral choanal polyp removal
- Dacryocysto rhinostomy
- Encephalocele repair
- Cerebrospinal fluid leak repair
- Pituitary surgery
- Mucocele removal

- Orbital abscess/ cellulitis management
- Orbital decompression
- Septal reconstruction
- Choanal atresia repair
- Epistaxis control

Technique of Diagnostic Endoscopy-

The endoscopic examination of the nasal cavity and of the lateral wall of the nose is usually accomplished in three steps:

1. Inspection of the nasal vestibule, the nasopharynx and inferior nasal meatus.
2. Examination of the sphenoethmoidal recess and the superior nasal meatus.
3. Examination of the middle meatus.

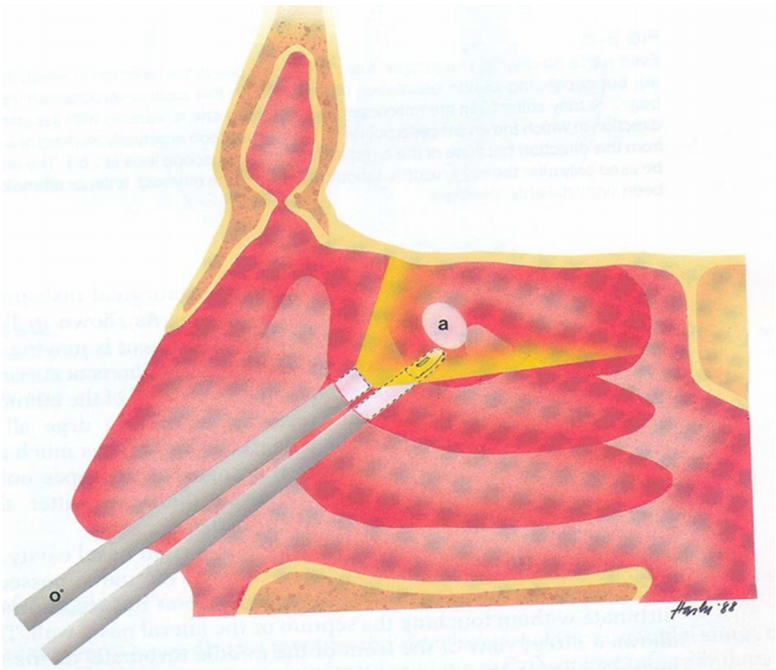


Figure-14: Position of instrument in case of 0° endoscope

The best endoscopes for the routine diagnostic nasal endoscopic examination are either the O-degree wide angle 4mm diameter endoscope or the 30-degree, 4mm diameter endoscope.

Common abnormalities found on diagnostic nasal endoscopy:

Nasal septal deviations

Septal tubercle

Anatomic variation of middle turbinate-

Concha bullosa

Enlarged and anterior extending middle turbinate

Paradoxically bent middle turbinate

- Abnormalities of uncinate process
    - Medially bent uncinate process
    - Laterally bent uncinate process
    - Elongated and enlarged uncinate process
    - Pneumatization of uncinate process
- Accessory maxillary sinus ostia
- Ethmoidal bulla[70].

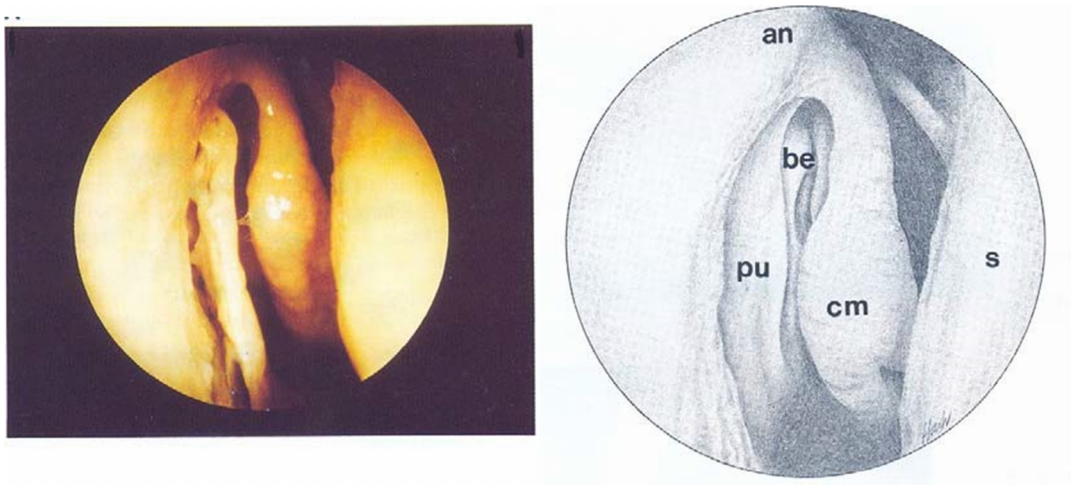


Figure 15-View through a 0º endoscope into a right middle meatus: cm-middle turbinate; pu-uncinate process; be-ethmoidal bulla; an-agger nasi; s-septum

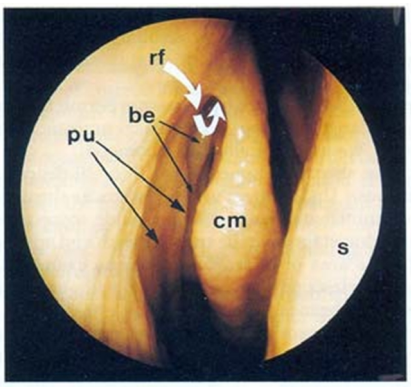


Figure 16- View into a normal right middle meatus (arrow indicates the path into frontal recess)

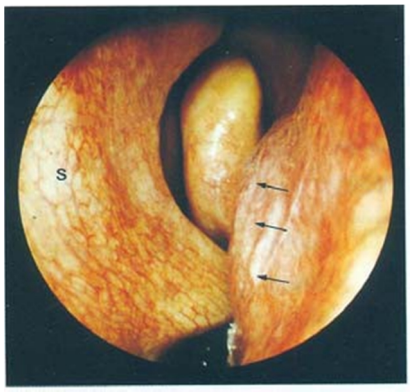


Figure 17- Septal spur impinging into the inferior turbinate

Temporomandibular Disorders

The temporomandibular disorders (TMDs) can occur as diffuse temporal headache, earache, and facial pain. True TMJ pain is characterized by tenderness to palpation over the condyle and by pain on jaw movement. Internal derangements are characterized by anterior and medial displacement of the articular disk when the teeth are interdigitated in occlusion. About 25 mm of space between the anterior teeth is the limit of rotational opening because further opening requires translation of the condyle. Degenerative joint disease (DJD) is characterized by crepitus and pain on jaw movement. It is usually self-limited and can be managed with NSAIDs. Most patients have combined muscle and joint pain with tenderness of the masticatory muscles and worsening with joint movement. A click on movement may be present. Mouth opening is limited. Management is similar to that for tension headache. NSAIDs and physical therapy form the mainstay of treatment. Other methods for muscle pain management such as biofeedback, trigger-point injection, and physical therapy are useful. Dental splints may be useful, and referral to dentistry is indicated.

Cranial Neuralgias and Facial Pain

Trigeminal Neuralgia

Trigeminal neuralgia (TN) is a syndrome of repetitive, brief attacks of severe, sharp, jabbing, or lancinating pain occurring in the distribution of one or more divisions of the fifth cranial nerve. Although individual attacks of pain are very brief, lasting seconds at most, they may occur many times in rapid succession and many times a day, resulting in significant functional impairment. Spontaneous remissions lasting many months or even years are not uncommon. The typical syndrome occurs in patients older than 50 years and runs a progressive

or fluctuating course over many years. The pain is localized most often in the second or third divisions of the nerve, with triggers commonly found at the corner of the mouth or lateral aspect of the nose. Triggers are small areas on the face that precipitate an attack when touched. Triggers also may arise in deeper structures such as the sinuses, oral mucosa, periodontal ligaments, fascia, and muscles. The syndrome is not associated with facial numbness, weakness, loss of corneal reflex, change in taste or smell, or other cranial nerve impairment. The presence of those findings should suggest another diagnosis, such as brain or meningeal tumor, nasopharyngeal pathology, chronic basal meningitis, Raeder syndrome, or internal carotid aneurysm. Diagnostic workup of patients with TN must include MRI of the head with and without contrast. A lumbar puncture should be performed in patients in whom the MRI does not clearly demonstrate a cause. CSF should be sent for Lyme titers, cryptococcal antigen, VDRL, and cytology, in addition to the routine cells, protein, glucose, TB, and bacterial cultures. CSF electrophoresis and immunoglobulin G (IgG)-to-albumin ratio with a paired blood sample should be evaluated for multiple sclerosis (MS). Medical treatment includes carbamazepine, gabapentin, baclofen, phenytoin, sodium valproate, or chlorphenesin .Adjunctive therapy consists of tricyclic antidepressants and NSAIDs. Opiates are effective in only a few patients. Surgical treatment is considered when medications cannot control the pain. Percutaneous rhizotomy is now replacing more complicated open procedures.

Glossopharyngeal and Other Less-Common Neuralgias

The glossopharyngeal nerve also is subject to development of neuritic-type pain similar in its temporal profile, pain characteristics, and intensity to that of TN. Paroxysmal attacks of unilateral, severe transient pain in the ear,

base of the tongue, tonsillar fossa or beneath the angle of the jaw can be precipitated by swallowing, chewing, talking, laughing, or yawning. These are stereotyped in the individual patient, and other causes must be ruled out. Workup and treatment are the same as for trigeminal neuralgia. Nervus intermedius neuralgia is felt in the posterior wall of the auditory canal. Superior laryngeal neuralgia is a very rare disorder first seen with pain in the lateral aspect of the throat, submandibular region, and underneath the ear, precipitated by swallowing, straining of the voice, or head turning. A trigger point overlies the hypothyroid membrane. Nasociliary neuralgia is a paroxysmal or constant pain in the region of the supraorbital notch with tenderness over the nerve; the pain is abolished by local injection of anesthetic. Occipital neuralgia is found in the distribution of the greater, lesser, or third occipital nerve and responds to local injection. Neck tongue syndrome is a symptom of probable compression of the second cervical nerve and its connections to the lingual and hypoglossal nerves. The sudden onset of pain is felt in the neck or occiput and ipsilateral tongue and may be precipitated by sudden turning of the head. In all these rare neuralgias, thoughtful history, examination, and radiologic or laboratory testing is indicated.

Optic neuritis appears with unilateral or bilateral dull eye pain worsening with eye movement. It associates with visual impairment due to central or paracentral scotoma. Pain may precede visual impairment by a month or less, and vision usually improves within 4 weeks. It is a cardinal presenting symptom in approximately 20% of patients with MS. Other head or facial pain may be attributed to MS. This may be unilateral or bilateral with or without dysesthesia and may be similar to trigeminal neuralgia. The occurrence of either symptom should provoke MRI, which may demonstrate demyelinating lesions in the pons,

midbrain, or thalamic connections. Facial pain or headache associated with MS may wax and wane with the disease.

Herpetic and Postherpetic Neuralgia

Herpetic skin eruption is a common disorder caused by the varicella zoster virus. The virus infects the trigeminal nerve in childhood as chickenpox. The virus remains dormant in sensory nerve ganglia for decades and can be reactivated by trauma or stress or during periods of compromised immune function. Pain affects the first division in 80% of patients. The reactivated virus is transported distally in the axon and produces small, crusting pustules on the skin. The acute infection produces a combination of burning, itching, and lancinating pain. Secondary infections of the skin worsen the pain. Associated symptoms may include ocular palsies, tinnitus or hearing loss, and facial weakness. Risk for this disorder is high in patients with lymphomas or immunocompromise. Antiviral medications such as acyclovir, NSAIDs, or opioids should be administered for pain during the acute phase. An oral prednisone taper should be considered. Pain lasting 2 months or more is called postherpetic neuralgia Opioid analgesics and NSAIDs often are of little use in this stage. Anticonvulsants are the most useful for pain management and may be combined with tricyclic antidepressants or baclofen to control the lancinating and shooting pains. Prognosis for a good response to the medication or spontaneous recovery worsens with advancing age. Topical lidocaine patches may be helpful. In refractory cases, surgical interventions may be of limited utility.

Atypical Facial Pain

Atypical facial pain is described as a chronic burning or aching pain without focal findings or any discernible etiology. It is a diagnosis of exclusion.

The facial pain is present daily and lasts most or all of the day. It is deep, poorly localized, usually one-sided, and is not associated with sensory loss or other physical signs. It may spread from the area of onset to include large portions of the face. It may be initiated by injury or surgical procedure on the face, teeth, or gums. Atypical face pain affects women more than men. Age at onset is between 30 and 50 years. Significant psychiatric findings include depression, somatization, and adjustment disorders in 60% to 70%. Psychiatric assessment is recommended. Atypical facial pain can be managed with antidepressants or anticonvulsants and mood stabilizers. These patients are at risk for iatrogenic problems due to multiple invasive evaluations and excessive medication. Pain associated with nerve injury and sensory loss is called anesthesia dolorosa. This may be unbearable, complex, and refractory.

REVIEW OF LITERATURE

Studies of epidemiology need to be population-based to avoid the risk of biases. This is frequently achieved by administering questionnaires in the community by interview or via the telephone. The important outcomes of epidemiology studies are incidence and prevalence .In practice, prevalence is assessed far more often than is incidence. To obtain further information, prevalence data is usually analysed for gender, age, race and other social and epidemiological factors .Overall, almost everyone gets headache: the lifetime prevalence is estimated as 93%, with a point prevalence of 11% in men and 22% in women. Prevalence studies, with diagnoses confirmed using the IHS criteria,[42] indicate that the only headache subtypes with a prevalence > 1% in the general population are TTH, migraine and CDH. These headaches are considered separately below.

Tension-type headache-

The pioneering studies of Rasmussen and colleagues showed that TTH is very common, indeed almost ubiquitous. The 1-year prevalence of TTH in Denmark was 63% in men and 86% in women, with a male: female ratio of 4:5.[42] Similar results were reported in a population-based study conducted in the USA, although with a lower 1-year prevalence of 38%.[43] The prevalence decreased with increasing age.[42] In Denmark, socio-demographic variables of marital status, cohabitation, educational level, occupational category of employment status were not significantly associated with TTH. However, TTH was positively associated with neuroticism, fatigue in both

sexes, time-pressure at work in women and exposure to fumes in men.[44] In the USA, TTH prevalence was associated with increasing educational levels and prevalence was higher in Caucasians than in African Americans.[45]

Migraine-

There are relatively few population-based data on the incidence of migraine. Studies show that incidence peaks in childhood and adolescence, then declines over time.[46,47] The overall incidence per year is about 0.2% for boys and 0.6% for girls. The mean age of incidence is lower for boys than for girls (13.7 versus 17.6 years).[48] In contrast, there are large amounts of information on migraine prevalence. 1-year prevalence rates from population-based studies conducted around the world are summarised in Table 11.

Table 11- 1 year prevalence of migraine from population-based studies.

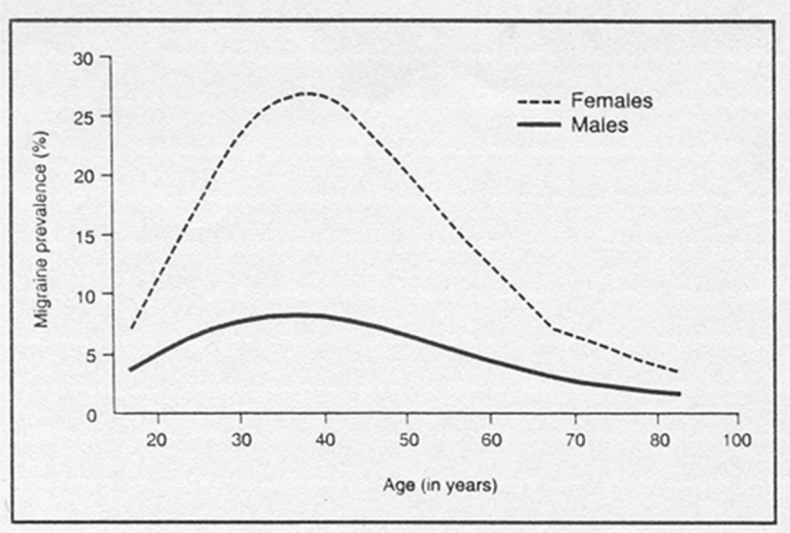
Prevalence (%)

Country, year	*n*	Age range (y)	Men	Women	Total
USA, 1992	20,648	12–85	5.7	17.6	10.5
Canada, 1994	2,992	18+	7.4	21.9	15.3
Denmark, 1991	1,000	25–64	5.9	15.3	10.4
Netherlands, 1995	1,008	12+	5.0	12.0	9.0
UK, 2003	4,007	16–65	7.6	18.3	ND
France, 2002	1,486	15+	4.0	11.2	7.9
Japan, 1997	1,597	15+	3.6	12.9	8.4
Malaysia, 1996	595	6+	6.7	11.3	9.0
Latin America, 2005	2,637	15+	2.9–7.8	6.1–17.4	ND

ND = No data

The overall prevalence of migraine worldwide seems to be about 10% overall, 6% in men and 15% in women. One large, international prevalence study showed that migraine without aura was much more common than migraine with aura; less than one-third of the migraine sufferers experienced aura symptoms.[49] The prevalence of migraine with aura has been estimated at 3% for men and 5% for women.[50]

Figure 18 -Gender and age specific prevalence of migraine



Overall, approximately 2–3 times as many women as men report migraine, most likely due to the influence of female sex hormones. Migraine is about twice as likely to occur at the time of the menstrual period as at other times in the menstrual cycle.[51] Up to the age of 12, more boys than girls have migraine, but the female preponderance starts at age 13, when menarche has usually occurred.[52] Prevalence in women increases up to about 40 years, then declines. A similar pattern is seen in men, with peak prevalence occurring at about 35 years. Prevalence declines thereafter for both genders, and < 5% of the

population is affected after age 70 years.[53] .Some studies show a low prevalence of migraine in certain Asian and African countries, which have been ascribed to cultural and environmental differences between races. A study in Americans showed that migraine prevalence was higher in Caucasians (20.4%) than in African Americans (16.2%) and Asian Americans (9.2%).[55] There therefore do appear to be real racial differences in migraine epidemiology, although the condition is common in all races. There is some evidence for variations in migraine prevalence in terms of social forces. The prevalence seems to increase as the levels of education and income decrease.

Chronic daily headache-

Very few population-based studies have been conducted on CDH. The available evidence suggests that CDH is a relatively common condition, affecting about 4–5% of the general adult population[56] . CDH can occur at all ages, from 5 to > 80 years, and without treatment, the condition can persist for years or decades[57] . Population-based studies have provided 1- year prevalence rates of 2.2% for chronic TTH[54,55] and 2.4% for chronic migraine[58] . Hemicrania continua and NDPH were reported rarely.[56,57] There are difficulties in assessing the prevalence of chronic migraine (often known as 'transformed migraine'), as studies published to date did not use the criteria recently published by the IHS.[43] Further studies are therefore necessary to investigate the epidemiology of chronic migraine. As with migraine, CDH was much more common in women than in men.[59] A population- based study showed that CDH was also associated with being Caucasian, lower education status, and in those

with a history of marriage[60]. Population- and clinic-based studies identified co-morbid conditions of obesity, diabetes, arthritis, allergy, asthma, hypothyroidism and hypertension, and associated with daily caffeine consumption and habitual snoring[61,62]. New-onset CDH was associated with the baseline headache frequency and obesity[63]. In the clinic, the presentation of CDH is typically of daily TTH-like headaches, with exacerbations of migraine-like headaches[64].

Medication overuse headache (MOH) is present in a substantial proportion of people with CDH. The overall population prevalence of MOH in a Spanish study was 1.4%, much higher in women (2.6%) than in men (0.19%)Prevalence increased with age, and the mean age of sufferers was 56 years. Most patients with MOH have a longstanding history of primary headaches, with a decade or more of overuse of symptomatic medications.33 A clinic-based study indicted that MOH was associated with asthma, hypertension and daily caffeine consumption.Other chronic headaches are much less prevalent than CDH. The best known, cluster headache, has an overall prevalence of about 0.4%; 0.3% in men and 0.1% in women.

Several studies demonstrate that the IHS system does not adequately classify many headache patients. Messinger et al the new IHS criteria and questionnaire data from two surveys, classified a clinic-based sample of 410 subjects with a history of headache for more than 2 years and were unable to classify 35.9% of the patients. Among them 9.1% had CTTH, and 86% patients had some migrainous features.

Solomon and Lipton[65] evaluated 100 CDH patients in a tertiary care center and of them 61% had continuous headache; 39% had intermittent headache defined by painless periods for at least 1 hour in at least 4 days a week. While two-thirds of these patients met the criteria for CTTH, many had migrainous features. One-third of these patients could not be classified as CTTH because they had too many migrainous features. Many of these headaches were classifiable as migraine were it not for their daily occurrence. A large number of patients could not be classified in the IHS system . Past history of headache is an important part in the diagnosis. Solomon and Lipton did not propose specific diagnostic criteria for these disorders and concluded that the IHS criteria should be modified to include TM (CDH evolving from migraine), and subtypes with and without medication overuse should be distinguished, both for TM and CTTH.

Sanin et al attempted to validate the IHS criteria in a headache clinic population.With a random selection of 400 patients they classified them using the IHS criteria and concluded that most patients in their clinic had more than one IHS diagnosis, that CTTH occurring alone is rare, and classification of chronic headache needs revision.

Pfaffenrath and Isler investigated the IHS criteria for CTTH in 211 subjects participating in a clinical trial of antidepressant treatment. Daily headache was present in 56%. Of the remaining 44%, headaches occurred an average of 18 days per month. More than two-thirds met the two major IHS criteria for CTTH (bilateral pain, 79%; pressure or tightening, 72%). Fifty-nine percent met all the IHS criteria for CTTH. However, many symptoms of migraine like unilateral headache,

20%; throbbing, 28%; anorexia, 39%; osmophobia, 25%; phonophobia, 60%; nausea, 53%; and increased pain with physical activity, 48% were reported. In total, 50% of all the patients failed to meet one or more of the criteria of migraine. In many of these patients the symptoms of migraine occurred with headache of mild intensity.They concluded that the IHS criteria need to be revised according to the classification of daily headache.

Saper found that 80% of his patients with CDH were typically women, had the migraine onset between 26 and 41 years of age ,frequently clinically depressed and had superimposed acute bouts of migraine. Many of these patients overused abortive headache medications and had significant long term improvement of their headache following detoxification.

Sandrini et al of Italy,classified 90 consecutive outpatients with CDH and 75% had CDH evolving from migraine,while 16.7% began de novo and 7.7% had evolved from episodic tension-type headache (ETTH).

Transformed migraine referred to migraine patients having distinct bouts which evolved into CDH with the disappearance of typical migraine attacks.

Migraine with interparoxysmal headache was defined as recurrent bouts of migraine with a constant headache of low severity in between attacks. Mathew demonstrated the phenomenon of transformed migraine,he reported a series of patients with distinct attacks of migraine whose headaches evolved over the years into a daily or near-daily problem.Patients had both migraine and tension headache features.90% of them had migraine without aura.

MATERIALS AND METHODS

The present study "**A STUDY OF EVALUATION AND MANAGEMENT OF PATIENTS WITH HEADACHE**" was conducted in the Department of Otorhinolaryngology in Thanjavur Medical College, Thanjavur from AUGUST 2011 to October 2013.

Source of Data

Patients for the study were collected from the Department of Otorhinolaryngology, Thanjavur Medical College Hospital, Thanjavur.

Sample Size

The study included 100 patients and the cases were diagnosed based upon the clinical examination and investigation.

Inclusion Criteria

Patients presenting with headache for more than 1 month of all age groups and sexes.

Exclusion Criteria

1. Medically unstable, lethargic, unarousable, agitated or uncooperative patients.
2. When the information obtained from the study is unlikely to change the patient's management such as in the situation of advanced care preferences, chronic disease, or end-of-life.

These patients were evaluated as follows:

Selected patients were subjected to a complete examination according to a defined proforma.Detailed history with thorough clinical examination was done. Patients were asked about history of headache, Mode of onset, Duration of complaint, Continuous or intermittent, Progressive or not ,Site of pain and radiation, Type of pain, Associated symptoms, Aggravating and relieving factors, Duration of each attack, Frequency of attack, Time of onset of attack, Diurnal variation, Treatment taken for the same, Patients suspected of migraine features were consulted with neurologist and complete clinical and radiological investigations have been done. Patients suspected of Tension type headache were consulted with Psychiatrist and opinion obtained. Patients suspected of refractive errors were consulted with Ophthalmologist and opinion obtained.

Routine blood investigations like Hb, TC, DC, ESR, BT, CT urine for albumin, sugar and microscopy. According to clinical diagnosis ,radiological investigations i.e., X-ray Para nasal sinuses (waters view), CT Para nasal sinuses, CT Brain ,Orthopantomogram and EEG was advised .DNE was advised to patients with nasal symptoms.

Acute infections were first treated with medication for 3 weeks.Patients with positive DNE findings and CT PNS findings were advised FESS. Patients with migraine were followed by The Migraine Disability Assessment Test.

Ethical clearance was obtained from the Ethics Committee of Thanjavur Medical College, Thanjavur.

OBSERVATIONS

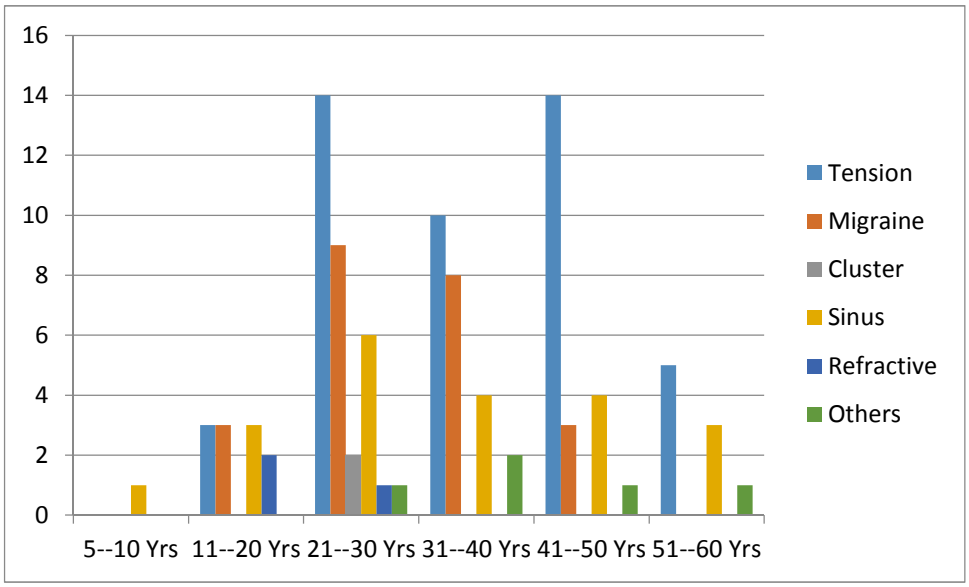
A STUDY OF EVALUATION AND MANAGEMENT OF PATIENTS WITH HEADACHE was conducted in Department of ENT, Thanjavur Medical college,thanjavur. A total of 100 patients with headache were studied for a period of about 2 years i.e., form August 2011 to October 2013, of which only 21 patients have sinus headache.

Table 12- Age distribution of Headache

	Age group (years)					
	5 – 10	**11- 20**	**21 – 30**	**31 – 40**	**41 – 50**	**51 – 60**
Tension Headache	--	3	14	10	14	5
Migraine	--	3	9	8	3	--
Cluster Headache	--	--	2	-	--	--
Sinus Headache	1	3	6	4	4	3
Refractive Error	--	2	1	-	--	--
Others	--	-	1	2	1	1

The highest age incidence is present in the age group of 21-30 year (33%), followed by 31-40 years (24%)

Figure 19- Age distribution of Headache



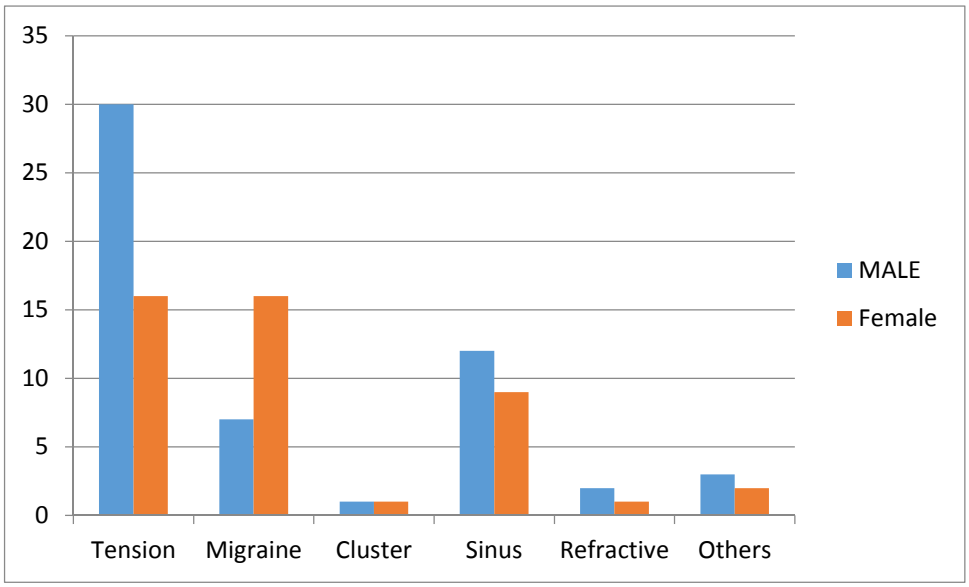
Tension headache is most common in age group of 21-50 years.Sinus headache is common in 21-30 years of age.

Table 13- Sex distribution of Headache

	Male	Female
Tension Headache	30	16
Migraine	7	16
Cluster Headache	1	1
Sinus Headache	12	9
Refractive Error	2	1
Others	3	2

65.22% of the patients of tension headache are males and 69.57% of migraine patients are Females.So tension headache is common in males and migraine is common in females.

Figure 20- Sex distribution of Headache



Male Female

Table 14-Sex Distribution (Other causes) (n=5)

	Male	Female
Hypertension	1	1
Trigeminal neuralgia	1	
Temporomandibular joint arthritis	--	1
Alcoholism	1	-

60% of the patients of headache due to other causes were males and 40% were females.

Figure 21- Sex Distribution (Other causes) (n=5)

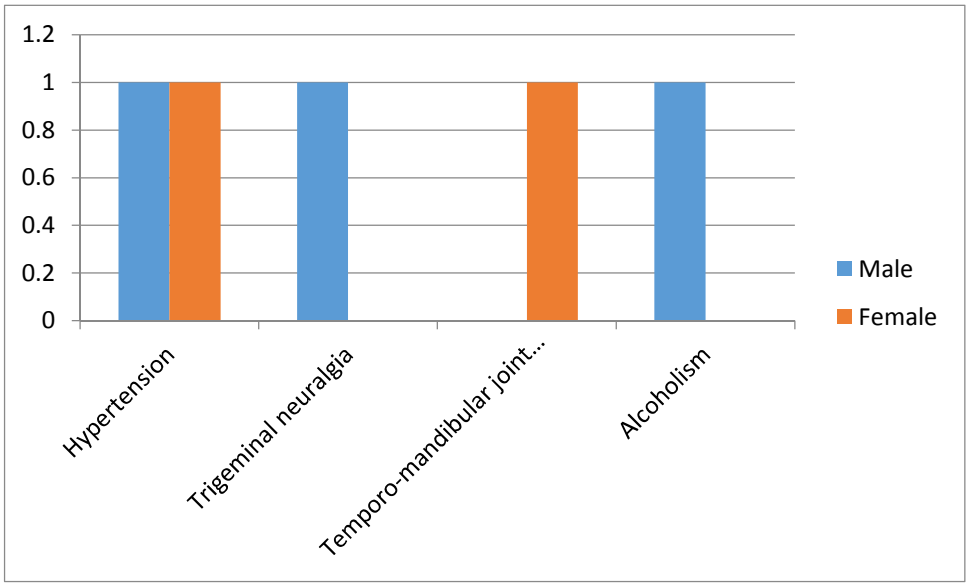


Table 15-Etiology of Headache with Respect to Clinical Findings

	No. of cases	Percentage of Rhinogenic causes
DNS	7	33.33
Chronic sinusitis	3	14.29
Osteomeatal complex disease	7	33.33
Polyp	2	9.52
Allergic rhinitis	2	9.52

33.33% of patients of headache had DNS and 14.29% of the patients had acute sinusitis, 33.33% of the patients had osteomeatal complex disease and 9.52% of patients had polyp, 9.52% of patients had allergic rhinitis .

Figure 22- Etiology of Headache with Respect to Clinical Findings

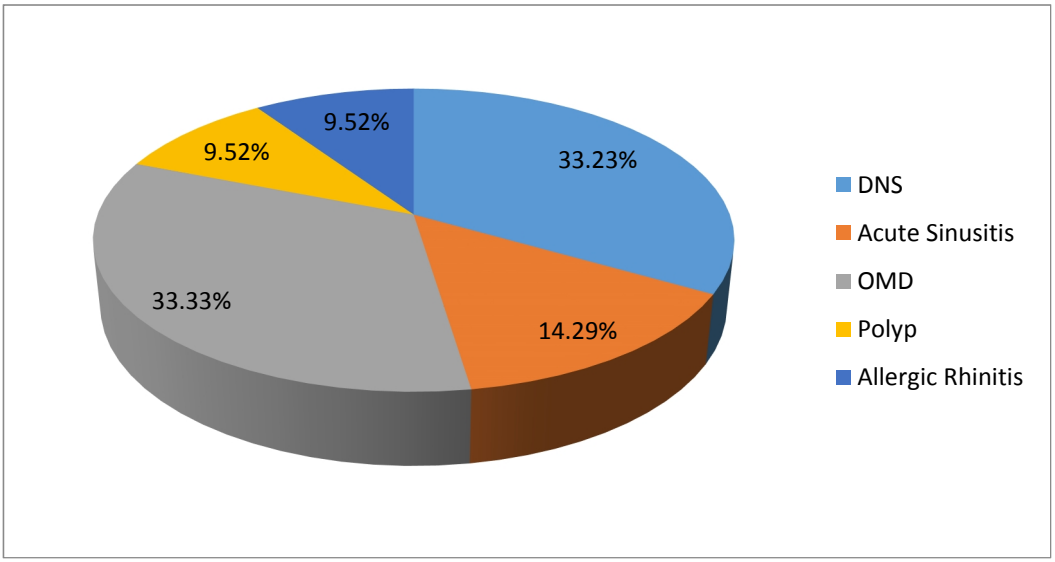
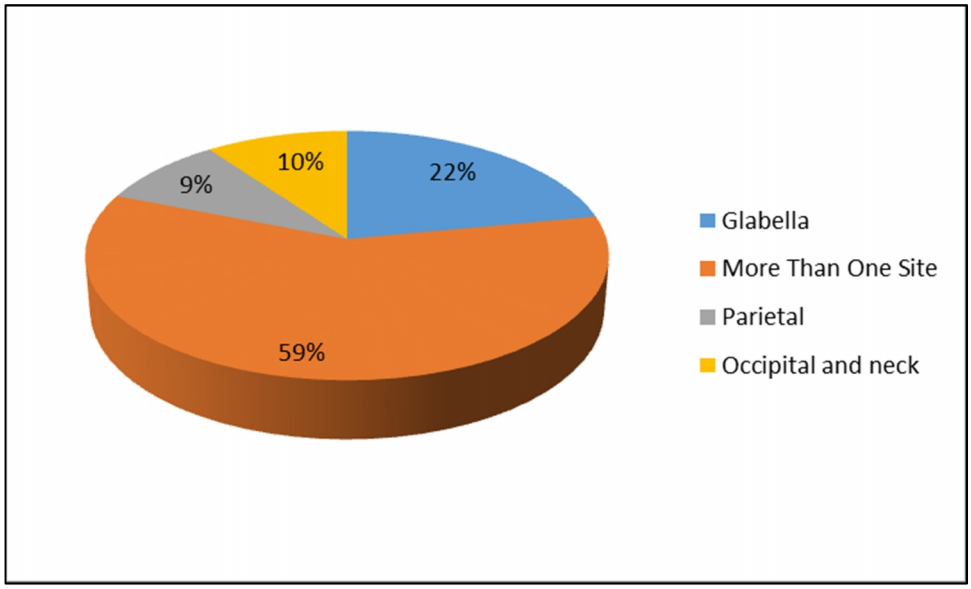


Table 16- Localization of Headache

Localization	No. of cases
Forehead	22
More Than One Site	59
Parietal	9
Occipital and neck	10

Patients with headache in more than one site were maximum i.e., 59% followed by headache in Forehead 22% .

Figure 23- Localization of Headache



Out of 100 patients,63 patients were having nasal symptoms.All 63 patients were undergone DNE.Out of which 32 Patients had positive findings.31 Patients had normal study.32 Patients had DNS with sinusitis,Osteomeatal complex disease,polyp,acute sinusitis and allergic rhinitis.

Table17- Patients who underwent DNE (n=32)

	No. of cases	Percentage
Mucosal contact points present	9	28.12
Mucosal contact points absent	23	71.82

28.12% of the patients who underwent DNE for headache had mucosal contact points as the main pathology.

Figure 24- Patients who underwent DNE (n=32)

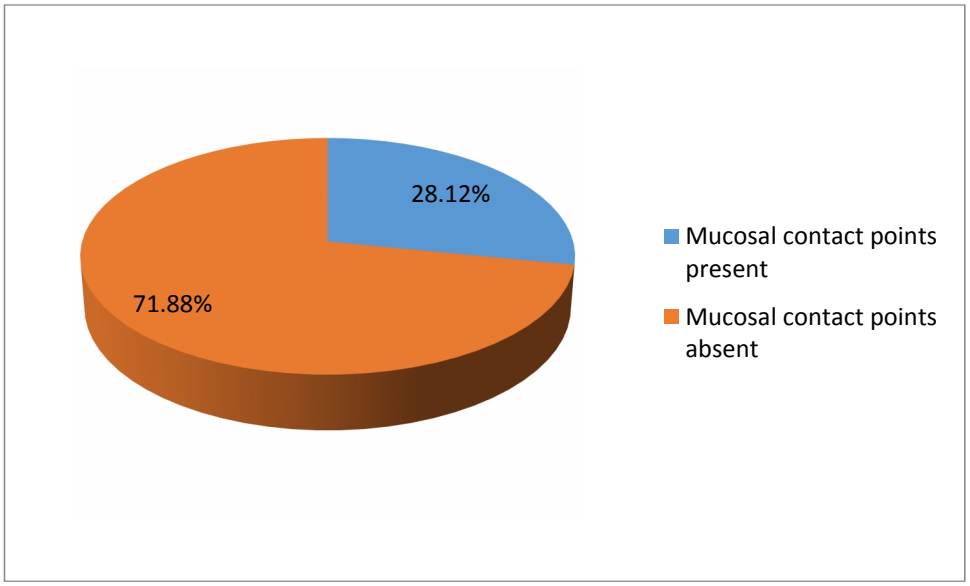


Table 18- Patients who underwent FESS due to mucosal contact point (n=9)

	No. of cases	Percentage
Total relief from headache	8	88.88
Significant relief	1	11.12

Out of 9 patients diagnosed as having mucosal contact points, 8 underwent FESS. All the patients are followed for 1 year.88.88% of the patients who underwent FESS for headache due to mucosal contact points were relieved totally from headache and 11.12% had significant relief.

Figure 25- Patients who underwent FESS due to mucosal contact point (n=9)

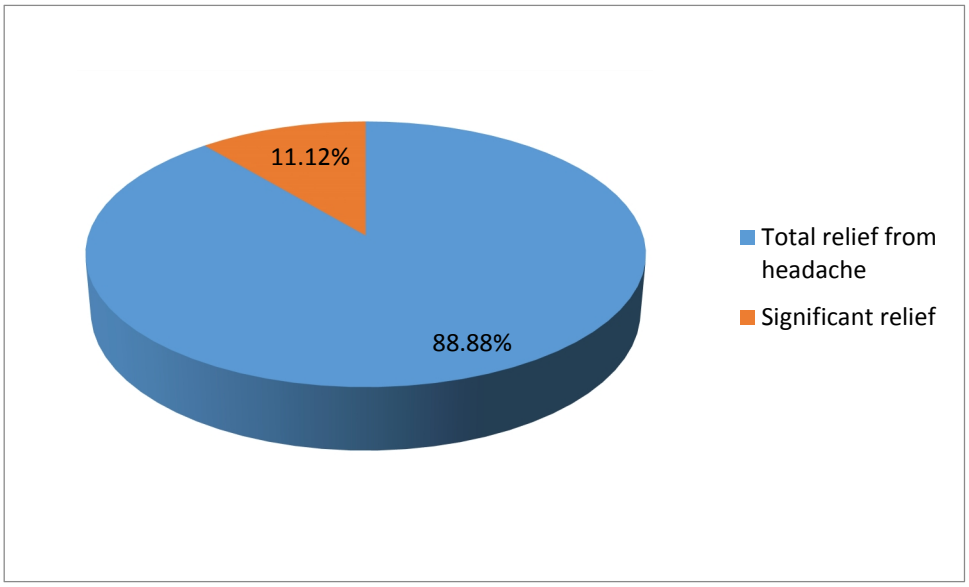
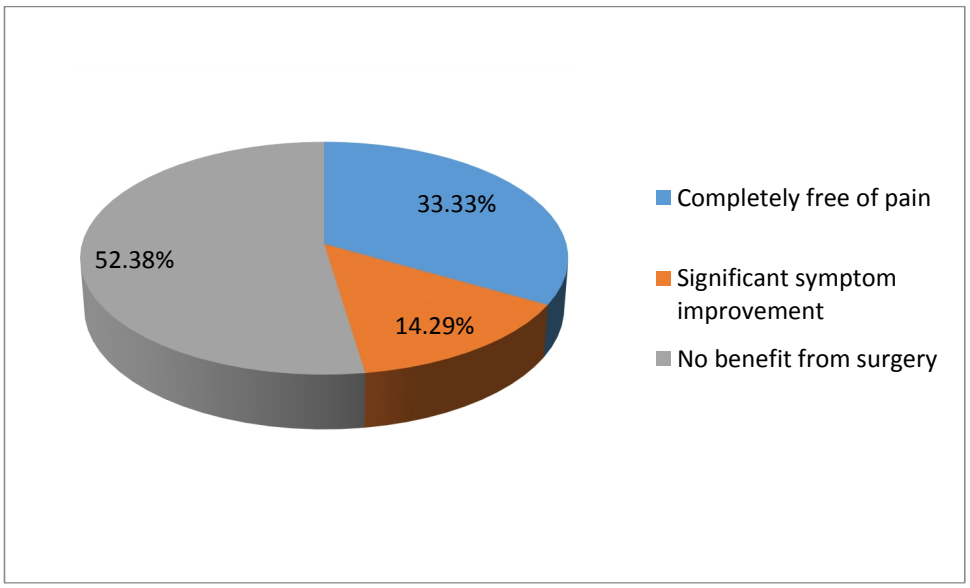


Table 19-Patients who underwent FESS due to causes other than Contact Points (n=21)

	No. of cases	Percentage
Completely free of pain	7	33.33
Significant symptom	3	14.29
No benefit from surgery	11	52.38

Out of 23 patients of headache due to causes other than contact point, 2 patients were diagnosed as Allergic Rhinitis.They were treated conservatively.21 underwent FESS. Patients who underwent FESS for causes other than mucosal contact points showed 47.62% improvement in headache and facial pain. 11 Patients with no relief were clinically examined and consulted with neurologist and 6 patients were diagnosed as tension type headache and 5 patients were diagnosed as migraine.

Figure 26-



Migraine-

Acute attack-Patients were advised to stay in dark and quiet room in lying down with head end elevation and T.Metoclopramide 5mgs+T.Paracetamol 500 mgs and T.Sumatriptan 100mgs were given.

Prophylaxis-T.Propranalol 40 mgs BD and T.Amitriptyline 50 mgs HS were given.Patients are followed up regularly at 15 days interval.

The Migraine Disability Assessment Test

1. Number of days in the last 3 months missed for school or office due to headaches?
2. Was your productivity decreased due to headaches? if yes, Number of days in the last 3 months ?
3. Number of days in the last 3 months did you not do household work?
4. Was your productivity in household work reduced by half of more because of your headaches. If Yes ,Number of days in the last 3 months?
5. On how many days did you miss family, social or leisure activities because of your headaches in the last 3 months?

    1] Did you have a headache,If yes how many days in the last 3 months?

    (If a headache lasted more than 1 day, count each day.)

    2]How painful were these headaches? a scale of 0 - 10, on average how painful?

    (where 0 = no pain at all, and 10 = pain as bad.)

Table 20-

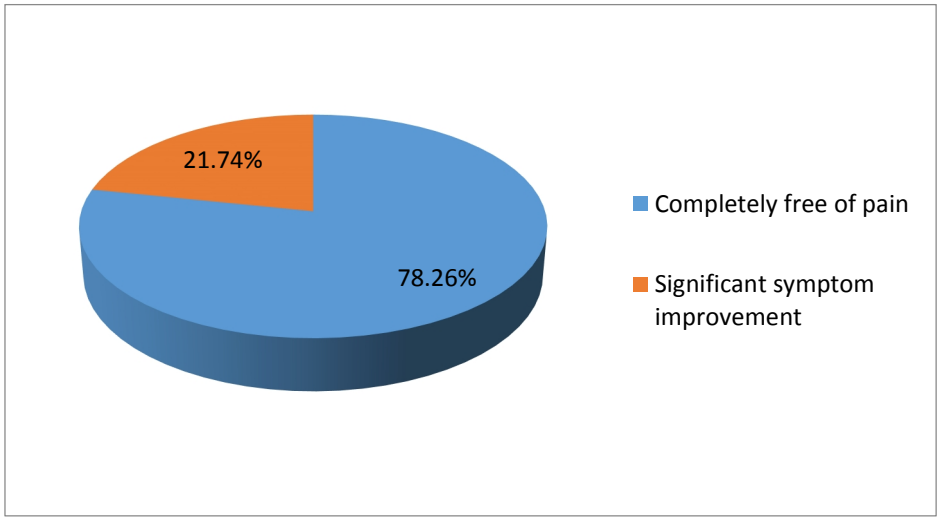
MIDAS Grade	Definition	MIDAS Score
I	Less or no disability	0-5
II	Disability- Mild	6-10
III	Disability- Moderate	11-20
IV	Disability- Severe	21+

Out of 23 Patients diagnosed as migraine 18 patients had subjective relief of headache.5 patients had Significant symptom improvement.

Table 21-

	Cases	**Percentage**
Subjective Complete relief of pain	18	78.26
Significant symptom improvement	5	21.74

Figure 27-



Tension Headache-

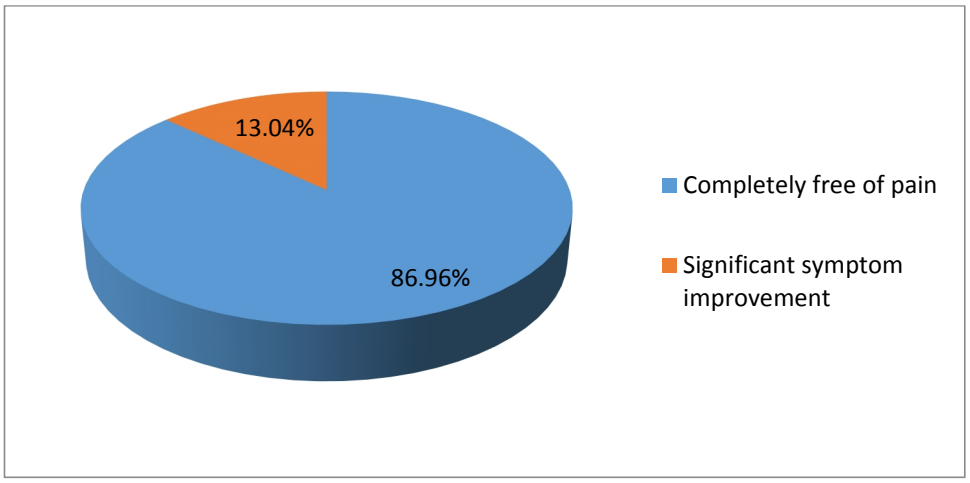
Out of 46 Patients with Tension Type of headache,12 patients were diagnosed as Episodic Tension Type of headache and 34 patients were diagnosed as Chronic Tension Type of headache, They were treated with relaxation techniques,

physical exercises and T.Amitriptyline 10 mgs once a day in evening. Patients are followed up regularly at 15 days interval.

Table 22-

	Cases	Percentage
Subjective complete relief of pain	40	86.96
Significant symptom improvement	6	13.04

Figure 28-



Cluster Headache-

Patients were prescribed T.verapamil 240 mg in evening and the patients improved significantly**.**

Trigeminal Neuralgia-

The patient underwent EMG , Nerve conduction studies,MRI with contrast.All were normal.Patient was started T.Carbamazeine 100 mgs daily.He had Significant symptom improvement.

DISCUSSION

The present study evaluates the clinical study of headache and its management during the period from August 2011 to October 2013 in the Department of E.N.T., Thanjavur Medical College, Thanjavur.Of the 100 cases presented with headache only 21 cases were having headache due to rhinogenic causes. These constituted 21%, which were followed-up.

Age Distribution-

According to study conducted by Pramod Kumar et al 2000, the majority of the cases of headache belonged to the age group 10-30 years[67].In our study, the majority of the patients had headache belonged to the age group 21-30 years.Thus, it can be concluded that the majority of cases of headache belong to age group 21-30 years.

Sex Distribution-

Regarding the affection of sexes due to headache our study shows that males were more affected at 55%.In a study conducted by Pramod Kumar et al 2000 showed male preponderance at 53%. In a similar study conducted by Wenig et al and Lebovics et al demonstrated a male predominance of headache in both adults and adolescents[68].Thus it concludes that headache is more common in males.

Localization of Headache-

In a study conducted by Pramod Kumar et al (2000), localization of headache to forehead was 43% while headache at more than one site was 19%, pain at glabella 12% and headache at top of head was 9%[67]

In our study, out of 100 patients of headache ,22 patients had headache at forehead i.e., 22%, 59 patients had headache at more than one site i.e., 59%, 9 patients had headache at parietal i.e., 9% and 10 patients had headache at occipital and neck i.e., 10%.Thus, it concludes that headache is localized at more than one site majority of cases.

Diagnostic Nasal Endoscopy-

In a study conducted by Parsons DS, Batra PS to analyze the outcome of care for 34 patients who presented with headaches as one of their primary sinonasal complaints and were subsequently found to have contact points between nasal septum and one or more turbinates on diagnostic nasal endoscopy.

In our study on 63 patients who underwent diagnostic nasal endoscopy, 9 patiens had mucosal contact points present (28.12%).

Medical Management-

Migraine-

In our study, For migraine e Prophylaxis-T.Propranalol 80mgs and T.Amitriptyline 50 mgs were given. 18[78.26%] patients had subjective relief of headache..5[21.74%] patients had Significant symptom improvement.

In a study conducted by Jackson JL, Shimeall W, Sessums L, et al likelihood of obtaining at least a 80% reduction in migraine was greater in patients taking a tricyclic (mainly amitriptyline) as compared to placebo.

A Cochrane Systematic Review of the use of propranolol for migraine prophylaxis was published in 2004 by Linde and Rossnage and it shows 70% reduction in migraine frequency relative to placebo .

Tension Headache-

In our study,for tension headache and T.Amitriptyline 25 mgs once a day in evening.40 [86.96%] patients had subjective relief of pain.

Lance and Curran's trials showed low dose tricyclic antidepressants (mean amitriptyline dose 50 mg/day) reduced headache by at least 70% compared with placebo .

Cluster headache-

In our study, both patients improved better after taking verapamil sr 240 mg..Leone M, D'Amico D, Attanasio A, et al.'s Double-blind placebo-controlled trial that evaluated the efficacy of verapamil 360 mg (three divided dosages) over a 14-day period, a statistically significant reduction in headache frequency.

Surgical Interventions-

In our study, patients due to mucosal contact points were advised to undergo functional endoscopic sinus surgery. Out of 9 patients, All 9 patients underwent surgery. Post-operatively, 8 patients (88.89%) had total relief from headache, 1 patient (11.11%) had significant relief and it correlates with studies mentioned below.

In a study conducted by Behin F, Behin B, 86% of patients underwent surgical intervention for contact points relieved from the symptoms.

Postoperatively-

88.89% of patients no longer complained of headache. 11.11% had significant relief[69].

In a study conducted by Parsons DS, Batra PS on 34 patients who underwent surgery for contact points reported a reduction in intensity in 91% of patients and reduction in frequency of headache in 85% of patients postoperatively[35].

Thus, from our study and the above mentioned studies, it is clear that majority of the patients who underwent FESS for mucosal contact points are totally relieved of the symptoms.

The remaining 23 patients who had other pathologies i.e., DNS, osteomeatal complex disease were also advised FESS to get rid of headache. Out of which 21 patients underwent surgery.

Post-operatively, 7 patients were completely free of pain – 33.33%; 3 patients had significant symptom improvement – 14.29% and 11 patients had no benefit from surgery – 52.38%.

Thus, it showed 47% improvement and correlates with studies mentioned below:In a study conducted by Welge-Leussen A et al, 10 years follow up of the patients who had undergone FESS was done. Out of 20 patients, six patients remained completely free of pain (30%), Four had significant improvement (20%) and Ten (50%) received no benefit from surgery (overall 50% improvement)[70].

In a study conducted in Department of Otolaryngology, Vajira Hospital, Bankok, 16 patients were operated on by FESS. Their principal complaint was facial pain or headache. Ten patients had no headache postoperatively (62.5%) and six patients (37.5%) had a reduction in severity[63].

Thus, from the present study and the above mentioned studies, an improvement in headache in 50% of patients operated for Non contact point headache can be expected after the patients undergoes FESS for headache.

SUMMARY

1. A total of 100 patients presenting in ENT Department with headache were taken for study.

2. Out of 100 patients,46 Patients had tension type headache.23 patients had migraine, 21 patients had headache due to sinogenic causes.

3. Headache can occur at any age. But the highest incidence was noted in the age group 21-30 years followed by 31-40 years.

4. Sex incidence is slightly more in males (55%).

5. Patients clinically diagnosed as Migraine and tension headache were consulted with Neurologist and psychiatrist and opinion obtained. Out of which 46 patients were diagnosed as Tension Type of headache and medical management was given. Out of 46 patients, 40 [86.96%] patients had subjective complete relief of pain.6 patients had Significant symptom improvement.

6. 23 patients were diagnosed as Migraine and medical management was given. Out of 23 patients,18 [78.26%]patients had subjective complete relief of pain. 5 [21.74%] patients had Significant symptom improvement.

7. In the patients of headache due to sinogenic cause 3 patients (14.29%) had chronic sinusitis, 7 patients (33.33%) had DNS, 7 patients (33.33%) had osteomeatal complex disease (OMD), 2 patients (9.52%) had polyps, 2 patients (9.52%) had allergic rhinitis.

8. Headache was localized to forehead in 22 patients (22%) and more than one

site in 59 patients (59%), at the Parietal in 9 patients (9%) and in 10 patients (10%) at Occipital and neck.

9. All the 63 patients underwent diagnostic nasal endoscopy out of which 9 patients (28.12%) were found to have mucosal contact points.

10. Out of 9 patients of headache due to mucosal contact points, all 9 underwent FESS, out of which 8 patients (88.88%) had total relief from headache and 1 patients (11.12%) had significant relief.

11. Out of the remaining 23 patients of headache 21 patients underwent FESS, 7 patients (33.33%) had complete relief from pain, 3 patients (14.29%) had significant symptom improvement, 11 patients (52.38%) had NO benefit from surgery. It showed that 67% of patients had improvement of headache after undergoing FESS.

12. 11 Patients with no relief was clinically examined and consulted with neurologist and psychiatrist and 6 patients were diagnosed as tension type headache and 5 patients were diagnosed as migraine and they are treated accordingly.

13. Endoscopic management of headache due to sinogenic causes provides a tool to the surgeon by which he can accurately diagnose meticulously and with minimal trauma operate and precisely provide postoperative care and follow-up.

CONCLUSION

Headache is nearly a universal human experience. The lifetime incidence of headache is estimated to be at least 90%.Before treating the headache it should be known that whether the headache is primary (when no clear pathologic condition can be identified) or secondary (metabolic, infectious, inflammatory, traumatic, neoplastic, immunologic, endocrine, vascular).

A carefully taken history is key to accurate diqgnosis that the majority of patients will not have sinogenic pain. Examination should include nasal endoscopy, which is particularly useful if the patient is currently in pain. In such circumstances, a normal nasal endoscopy makes the diagnosis of Sinogenic pain extremely unlikely.

Sinus x-rays are not helpful in the diagnosis and management of chronic facial pain and sinusitis. Computed tomography scans should not be routinely performed because sinus mucosal thickening is common in asymptomatic patients and management based only on scan findings will result in unnecessary surgery.

Given that the majority of patients presenting with facial pain will not have sinusitis, surgery is very rarely indicated in the treatment of chronic facial pain.

Familiarity with the various medications available to treat nonsinogenic facial pain and liaison with other specialties, such as neurology, maxillofacial surgery and clinical psychology will benefit patients.

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PROFORMA

HEADACHE QUESTIONNAIRE

DEPARTMENT OF OTORHINOLARYNGOLOGY

THANJAVUR MEDICAL COLLEGE HOSPITAL,THANJAVUR

NAME-

AGE/SEX-

ADDRESS-

MOBILE NO-

1. Description of Present Illness-

1a. Complaint of Headache for

1b. Getting headaches about every: day week month three-months year (circle 1)

1c. Headaches last: seconds minutes hours days (circle 1)

1d. Description of head pain (circle one or several)

throbbing	pulsating	constant	
tight	squeezing	sharp	tender

1e: Headaches are located (mark location, one or several)

2.Headache is accompanied by-

Diarrhea

Dizziness

Drooping eye lid

Facial tenderness

Fever

Flushing on one side of the face

Light sensitivity

Loss of consciousness

Nausea or vomiting

Neck stiffness

Noise sensitivity

Numbness in face/arm/leg

Red, tearing eye

Runny nose/congestion

Swelling of ankles

Speech disturbance

Visual disturbances

Weakness in face/arm/leg

3A. Is your head pain triggered by any of the following-

Alcohol

Bending over

Blood Pressure

Depression, anxiety, nerves, or stress

Headmovement

Menstrual periods

Seasons

Swallowing

Sleep or Lack of sleep

3B. Is your head pain relieved by any of the following-

Coldcompresses

Heat

Massage

Medication

Moving around

Relaxation

Sleep

Vomiting

4.Life Style-

How many alcoholic drinks per day ?

How many caffeinated drinks per day ?

How many hours do you sleep per day ?

Do you smoke cigarettes, cigars or pipes ? No Yes

Are you usually highly stressed ? No Yes

Do you usually eat 3 meals/day ? No Yes

5. INJURIES-

head

neck (for example whiplash)

dental work preceding onset of headache ?

6.Current medications include hormones, birth control pills, vitamins, etc. (Name and amount/day)?

7.FAMILY HISTORY-

Are there any family members with

Diabetes

Stroke

Heart disease or high blood pressure

Migraine headaches

Other diseases that run in the family

8.MEDICAL HISTORY-

9.PREVIOUS STUDIES-

Have you had any of these tests or procedures ? (circle, date if done, and please note result if known)

OTHER SPECIALTY VISITS

Opthalmologist

Dentist

Neurologist

NEUROLOGICAL TESTS

Carotid Doppler

Lumbar puncture (spinal fluid examination)

EEG (Brain Wave test for seizures)

GENERAL MEDICAL TESTS

Recent general blood tests (Glucose, blood count)

Heart testing (EKG, Stress test, Holter Monitor)

RADIOLOGY

CT Brain

Sinus X-rays or CT PNS

Neck X-rays, CT or MRI

Chest X-ray

ANNEXURE

ABBREVIATION

1. CTTH -- CHRONIC TENSION TYPE HEADACHE.
2. CDH -- CHRONIC DAILY HEADACHE.
3. IHS -- INTERNATIONAL HEADACHE SOCEITY.
4. ICHD -- INTERNATIONAL CLASSIFICATION OF HEADACHE DISORDERS.
5. MT -- MIDDLE TURBINATE.
6. MTH -- MIDDLE TURBINATE HYPERTROPHY.
7. UP -- UNCINATE PROCESS.
8. OMC -- OSTEO MEATAL COMPLEX.
9. DNE -- DIAGNOSTIC NASAL ENDOSCOPY.
10. CT -- COMPUTERISED TOMOGRAM.
11. PNS -- PARA NASAL SINUS.
12. SMR -- SUB MUCOSAL RESECTION.
13. FESS -- FUNCTIONAL ENDOSCOPIC SINUS SURGERY.

MASTER CHART

S.No	NAME/A/S/ADD/IP NO	SYMPTOMS	ANTERIOR AND POSTERIOR RHINOSCOPY	DNE	CT PNS	CT BRAIN	DIAGNOSIS	TREATMENT	OUTCOME
1	Dhanavally 36 /F W/o N. Swaminathan, 1/183, VyapuriVaniyar Nagar, Thanjavur. OP :004223	Pain in forehead and cheeks -6 months	DSR, Purulent secretions +	DSR	RT MAXIILARY SINUSITIS	NORMAL	DNS WITH SINUSITIS	SMR WITH FESS	RELIEVED
2	Kamalaveni 55 /F 10/67 Dhanalakshminagar M C Road, Manojipatti Thanjavur OP : 002879	c/o headache - 6months over both parietal regions	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
3	Kalyanasundaram 44/M S/o Kasinathan Kannur Therkutheruvu Needamangalam, Kasapaiyanchevadi Thanjavur OP: 001342	c/o headache - 4 yrs (On & off	DSL, Congested mucosa	DSL	LT MAXIILARY SINUSITIS	NORMAL	DNS WITH SINUSITIS	SMR WITH FESS	RELIEVED
4	Jayaraman 45/M 1/107,Keela main Road, Thiruvalansnehi	c/o headache- 1yr	NORMAL	Spur +	Normal	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT

	Kumbakonam. OP: 002656								
5	Aparna 12/ F 213, Melalangam, ModaamumaarKoil, Thanjavur. OP: 002462	c/o headache - 2 Months h/o vomiting	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
6	Usha 45 /F 8, Ammankovil street, Kumbakonam. OP: 002458	C/o headache - 6 months	DSL	DSL	DSL	NORMAL	TENSION HEADACHE	MEDICAL	RELIEVED
`7	Ramadasan 41/ M S/o Shanmukham, Parathinagar, manojipatti, Thanjavur. OP: 001419	c/o headache - 2 months.	ITH +	ITH +	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
8	Thangappan 50 /M S/oNatarajan, nemam post thanjavur dist. OP: 014592	c/o headache - 5 months h/o nausea	Spur along floor	Spur along floor	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
9	Sathya 30 /M S/o Bhoominathan, 20A, Vanchur Soularjaram, Mannarguditaluk. OP nos - 28639	c/o headache – 5 mon vomiting +	DSR , Congested mucosa	DSR	DSR	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
10	Latha 48/ F W/o Manivannan, 106A Thendral Nagar 3rd street, Natarajapuram south	c/o headache - 2 yr	NORMAL	DSL	DSL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT

	colony,Thanjavur. OP: 002288								
11	Kayalvizhi 27/F 398, Periyakottai, Mohanir post Kantharvakottai. OP: 003763	c/o headache - 1month Frontal tenderness	DSL	DSL	DSL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
12	Mani 60 /M 96, kallukaranpatti Valavampatti post Pudukkottai OP: 002896	c/o headache - 1yr frontal tenderness +	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
13	Jennifer 29/ F 31/71 Mathakoilst, Maharajapuram Thiruvaiyyar OP: 003974	c/o headache – 2mont	spur along floor	spur along floor	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
14	Rasathi 44 F 203, Ayyavadi Mathakottai Kumbakonam IP: 156211	c/o headache - 2yrs	Purulent secretions +	spur along floor (left)	Rt maxillary polyp with bilateral concha bullosa	NORMAL	SINUSITIS with POLYP	SURGIAL	SUBJECTIVE IMPROVEMENT
`15	Kamalasanan 55 M 10/67 Dhanalakshminagar M C Road, manojipatti Thanjavur OP: 002498	c/o headache - 1 mor	NORMAL	spur along floor	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	RELIEVED
16	N selvaraj 19 M S/o Natarajan Alakudi,Melaputturtheru	c/o headache - 4 yrs	DSL	mild DSL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT

	Thanjavur OP: 002469	frontal region tenderness+ h/o eye pain							
17	Bairoja 30 F 2nd street, rahimnagar Mohammed bardar Kalyanapuram OP : 003891	c/o headache - 2yrs h/o vomiting	congested mucosa	congested mucosa	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
18	Pulavendran 32 M 175, ilangudu Sivan kovilvedakkumpuram Thirukkattupalli OP: 02831	c/oheadac he - 3 yrs	DSL + congested nasal mucosa +	DSL + congested nasal mucosa +	DSL with SINUSITIS	NORMAL	DNS with SINUSITIS	SMR WITH FESS	SUBJECTIVE IMPROVEMENT
19	Anbudasan 30 M 200, Palabanandavanam Rukmaniammal madam CRC (Near) Thanjavur OP: 02007	c/o headache - 1 month no h/o vomiting SMR done 4 yrs back	NORMAL	spur along floor	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
20	Karigaalan 42 M T. Karunanidhi 3, vadayarpatti Margalore post Kantharvakottai OP: 12609	c/o headache - 1yr frontal headache	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
21	Sakunthala 47 f Saranthopputtam Keelakabilsthalam Papanasam OP: 28453	c/o headache - 6yrs C/o nasal obstruction	DSL	gross deviation to left	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	NOT IMPROVED

22	Fathima 25 f No 7, Machirastreet Pullampadi Lalgudi OP: 03761	c/o headache – 2yrs h/o common cold on & off	DSL congested mucosa	DSL congested mucosa	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
23	Sivagangai 54f c/o B R Ganesan thartakalpadugai neadamangalam OP: 02525	c/o headache - 5 month	DSL+ frontal tenderness	DSL+ frontal tenderness	FRONTAL SINUSITIS	NORMAL	DNS with SINUSITIS	SMR WITH FESS	SUBJECTIVE IMPROVEMENT
24	Natesan 44 M c/o E V Rajendran 2/57, common koil street Mathur, Thanjavur OP: 03891	c/o headache - 1 wk h/o increased sneezing	spur along floor	spur along floor	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	RELIEVED
25	Sivan 19 M d/oMurugesan 709/1 Tahikkani Vrandhairajankudikadan Orthanadu. OP: 02691	c/o headache - 1month h/o nausea no h/o blurring of vision ophthal opinion - RE	NORMAL	NORMAL	NORMAL	NORMAL	REFRACTIVE ERROR	GLASSES	SUBJECTIVE IMPROVEMENT
26	Sakunthala 26 f c/okaliyamurthi 118, kamatchiammankoil Karukudi Thiruvaiyam OP: 02569	c/o pain over Rt side of face - 1 wk no h/o nasal obstruction	NORMAL	NORMAL	NORMAL	NORMAL	TEMPEROMANDIBULAR JOINT ARTHROSES	MEDICAL	NOT IMPROVED
27	Ramya 18 f	c/o headache – 5	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT

	4/926, pookollai Pillayarpatti, thanjavur OP: 27114	yrs no h/o nasal obstruction h/o vomiting h/o photophobia							
28	Packiyam 36 f w/oraju 113, adakara street, Manambuchevadi, Thanjavur OP: 36542	c/o headache – 8 yrs increased sneezing tenderness over both maxillary sinus	DSR, Congested mucosa, secretions	DSR	Bilateral ethmoid & maxillary sinusitis	NORMAL	DNS With SINUSITIS	SMR WITH FESS	RELIEVED
29	Lakshmi 42 f w/o Chandrasekhar. 1/11 rajaram street.Karathai OP: 02689	c/o headache 10 yrs h/o HOH no vomiting photophobia +	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	NOT IMPROVED
30	Muhammed Latif 56 M S/o Abdulazeez 100, minnagar Chidambaram OP: 2584	c/o headache - 5 months no vomiting	DSL, Purulent secretions	DSL	bilateral maxillary sinusitis	NORMAL	DNS With SINUSITIS	SMR WITH FESS	RELIEVED
31	Russiar 30 M 120, vanchur Mannargudi. OP: 52278	c/o headache - 6 months h/o nasal obstruction h/o vomiting	NORMAL	NORMAL	Rt maxillary sinusitis	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
32	Podhumponnu 45 f 185/54 therkuthan Pallikondan Malaiyakadu post Athirampatti. OP: 3221	c/o headache – 4yrs h/o vomiting h/o neck pain	DSL	DSL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT

33	Sankaravel 26 M S/o Manoharan 331/Athoppu street Thanjavur. OP: 01289	c/o headache – 1yr h/o pain in occipital region. No vomiting	Congested mucosa, Secretions	Congested mucosa	Ethmoid & sphenoid sinusitis	NORMAL	SINUSITIS	SMR WITH FESS	SUBJECTIVE IMPROVEMENT
34	Parimala 32 f W/o sakthivel, Thiruvonam post. Alangudi Puthukottai. OP:2436	c/o headache – 1 yr h/o nasal obstruction. h/o vomiting h/o photophobia SMR with FESS (18/06/12) Headache not decreased	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
35	Anandh 49 M S/o Marimuthu Mariyammankovil Thanjavur. OP: 2169	c/o headache – 2 months no vomiting no nasal obstruction	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	NOT IMPROVED
36	Indiran 27 M S/o Shanmughan pudhutheram madhagaram papanasam. OP: 2138	c/o headache – 1yr no vomiting no nasal obstruction	DSL	DSL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
37	Akhil 21 M S/o Anand Alangdi. OP: 23143	c/o headache – 6 months h/o trauma h/o occipital headache	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT

		h/o vomiting							
38	Srikumar 35 M 3/6, pookkara 3rd street St. Josephs school Thanjavur. OP:011228	c/o headache – 1 yr no vomiting	NORMAL	DSR	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
39	Gayathri 46 f 1947, Rahmannagar Thamaraistreet Alpha housing Thanjavur. OP: 12034	c/o headache – 1 yr h/o watery discharge	Congested mucosa, secretions	DSL	bilateral maxillary sinusitis Rt concha bullosa	NORMAL	DNS with SINUSITIS	SMR WITH FESS	NOT IMPROVED
40	Anambudan 31 M Mahendran Dhanapackiyam colony Kumbakonam road Needamangalam. OP: 21301	c/o headache – 2 yr h/o increased sneezing	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
41	Abiram 16 M S/o Ravidran 31/2, salliaman street Thanjavur. OP: 02154	c/o headache - 2 yrs	DSR, Congested mucosa	DSR	bilateral maxillary sinusitis	NORMAL	DNS with SINUSITIS	MEDICAL	SUBJECTIVE IMPROVEMENT
42	Malarvizhi 25 f w/omanimuthu 7, old nellumandi street, North gate Thanjavur. OP: 32167	h/o headache - 5months h/o vomiting h/o photophobia septoplasty done 7	DSL	DSL with buckling of septum	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT

		yrs back							
43	Vinotha 27 f d/o sivasankar tharjappudayappatti kurankulam west sakkaraiallai thanjavur. OP: 01342	c/o headache – 1yr h/o eye pain ophthal – myopia	NORMAL	NORMAL	NORMAL	NORMAL	REFRACTIVE ERROR	GLASSES	RELIEVED
44	Lilly 38 f w/o arokyadas vilvarayampattikeelatheru badalur post thanjavur OP: 09261	c/o headache - 2 yrs h/o vomiting h/o pain Lf forehead	NORMAL	ITH	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
45	Chinna 22 M S/o Ganesan rajamadaru post keelathottam west street, Pattukottai OP: 018865	c/o headache - 8 yrs h/o occipital pain	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
46	Amrutharajan 44 M S/o Ilangovan 22, vellalaviduth post Karbakuditaluk. Pudukottai OP: 01426	c/o headache - 2 yrs no vomiting h/o blurring of vision.	DSL	DSL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
47	Shanthanam 38 M S/o Subramani 1604, upparikani North street. Manojipatti	c/o headache -5 months no vomiting no vision problems	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT

	OP: 02651								
48	Murugesan 25 M 3/357, melathelikottai West street Mannargudi. OP: 26111	c/o headache - 5 months h/o nausea	NORMAL	DSL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
49	Suryan 17 M S/o Selvaraj south street ganapathipuram pudukkottai. OP: 21842	c/o headache -5 months nasal obstruction +	DSR, Purulent secretions +	DSR	bilateral maxillary sinusitis	NORMAL	DNS with SINUSITIS	SMR WITH FESS	SUBJECTIVE IMPROVEMENT
50	Vadivel , 55 M 55, krishnankoil 2nd street, Manamachavadi, Thanjavur OP: 18632	C/o headache – 5 yrs frontal tenderness + BP : 160/100 mm of Hg	NORMAL	NORMAL	NORMAL	NORMAL	HYPERTENSIVE HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
51	Abdulla 44, M Rajajinagar, Thanjavur. OP: 27537	c/o headache – 1 yr frontal and occipital region h/o vomiting	DSL	DSL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	RELIEVED
52	Mahesh 32 M Varappur, perungalur Pudukottai OP: 02781	c/o – headache – 4 days h/o giddiness h/o assault – 2yrs	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	NOT IMPROVED
53	Gunasekaran 43 M OP : 004787	c/o headache – 1 yr frontal region	ITH both sides,	septum midline	FRONTAL & MAXILLARY	NORMAL	FRONTOMAXILLARY	FESS	SUBJECTIVE IMPROVEMENT

	Umayalpuram, Attrankamaistreet, Indira nagar. OP: 03122	h/o sneezing	congested mucosa	ITH both sides, congested mucosa	SINUSITIS		SINUSITIS		
54	Mahadevaiya 30 M Cheyyamangalam, Thiruvaiyam. OP : 23137	c/o headache – 1 month frontal region h/o sneezing, nasal obstruction	DSL , congested mucosa	DSL , congested mucosa	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
55	Anjalai 60 F Chintaani, thanjavur. OP : 324887	c/o headache – 1 yr frontal region no h/o sneezing,vomiting	DSL	DSL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	NOT IMPROVED
56	Lakshmi 30 f Chennampatti, vallom OP : 10594	c/o headache – 1 month h/o pain forehead h/o flashes of light	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
57	Selvan 28 M Manjanarikothai, Thanjavur. OP: 36128	c/o headache - 3 wks Rt side of forehead	NORMAL	NORMAL	NORMAL	NORMAL	CLUSTER HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
58	Suresh 27 M Thiruvenganuoor, Thanjavur OP: 03448	c/o headache – 6 yrs parietal& temporal region no vomiting	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
59	Vivek 20 M Ammanpettai, thanjavur.	c/o headache - 6 yrs frontal region no h/o nasal obstruction	DSL, secretions	DSL	SINUSITIS	NORMAL	DNS with SINUSITIS	SMR WITH FESS	RELIEVED

	OP: 14321	h/o common cold on & off							
60	Baby 54 M Anjanakovil street Thanjavur OP: 29031	c/o headache – 1 month h/o nasal obstruction Left side	DSR	DSR	DSR	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
61	Rajaseswari 24 F Thanjavur OP : 023738	c/o headache - 15 days	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
62	Aswathy 10 F Manojipatti. Thanjavur OP: 13201	c/o headache – 2 months frontal tenderness both tonsils enlarged. Both JD nodes enlarged diagnosis – frontal	DSL, secretions+	DSL, adenoid hypertrophy	DSL, SINUSITIS	NORMAL	DNS with SINUSITIS with CHRONIC ADENO TONSILLITIS	SMR WITH FESS	RELIEVED
63	Shinose 17 M Peravur, Vallom OP: 01273	c/o headache – 2 months vomiting , giddiness	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
64	Valli 48 F Thirakkattupalli. Thanjavur OP : 26235	c/o headache - 2 months Reddening of eyes	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
65	Raju 49 M south street, Easwarankoil bath, Senthalai, Nadukavery, thiruvayur	c/o headache 3 yrs parietal region h/o dizziness	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	NOT IMPROVED

	OP: 305470								
66	Sharmila 22 f c/ochinanniyan, Thirunaippu, Poondi, Papanasam, Thanjavur. OP: 20071	c/o headache - 1yr occipital region h/o vomiting, light sensitivity, visual disturbances pain increased during menstrual periods	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
67	Umesh 26 M 527, Anna nagar, Tholagripatti, Kurungulam, Thanjavur OP: 05966	c/o headache - 1 yr h/o runny nose triggered by seasonal changes	DNS, Congested mucosa	DNS, Congested mucosa	SINUSITIS	NORMAL	DNS with SINUSITIS	SMR WITH FESS	RELIEVED
68	Durai 24 M Parukaividudi, Mohanur post, gandharvakottai Pudukottai OP:31650	c/o headache 3 months retro orbital	NORMAL	NORMAL	NORMAL	NORMAL	CLUSTER HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
69	Govindaraj 50 M Puliyakoodi, Vadakithoppu OP:05246	C/o headache – 2months parietal region	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
70	Selvi 35 F 3rd street, Rajagopalapuram, Pudukottai OP: 034178	c/o headache - 3yrs h/o running nose left side	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT

71	Kannusami 28 M nos 5, Sreekrishna Nagar manojipatti . OP: 02235	c/o headache – 4yrs triggered with depression, anxiety	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
72	Sangeetha 25 F vandayariruppu orathanadu OP:17106	c/o headache – 3 months h/o nausea, runny nose	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	RELIEVED
73	Vidya 33 F Vedapuram, Aadichapuram Mannargudi, Thiruvarur OP:24359	c/o headache – 3 yrs h/o nausea, noise sensitivity, red tearing eyes, runny nose triggered by lack of sleep	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
74	Amudha 38 F Ayyampettaibypassroad, Papanasam,thanjavur OP:01419	c/o headache – 1 year h/o noise sensitivity, red tearing eyes triggered by bending over, head movements ophthal opinion – Normal	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
75	Guhe 48 F Melapuliyampettai, Ambedkarnagar, Thirubhuvanam post,	c/o headache – 3 months h/o dizziness, visual disturbance	NORMAL	NORMAL	NORMAL	NORMAL	HYPERTENSION	MEDICAL	RELIEVED

	OP: 012673	recent onset hypertension							
76	Manoj 14 M poondi,kunnalkudi post, Thanjavur. OP:56910	c/o headache – 1 yrs retro orbital region, neck pain h/o dizziness Ophthal opinion – adviced glasses for past 3 yrs	NORMAL	NORMAL	NORMAL	NORMAL	REFRACTIVE ERROR	GLASSES	RELIEVED
77	Palanivel 40 M vadakkutheru, thalapatti, rasuwapath, Vallam OP: 74978	c/o headache 10 yrs parietal area h/o dizziness, facial tenderness, nausea, neck stiffness h/o accidental fall 5 yrs back	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
78	Saraswathy 30 F s/oselvaraj, Pillayarkovil street, Anthali Naducauvery ,Thanjavur Mob – 9659642074 OP: 002999	C/O headache 1 yr area	DSL, Secretions	DSL	OMC Crowding, Concha Bullosa	NORMAL	DNS with SINUSITIS	SMR WITH FESS	SUBJECTIVE IMPROVEMENT
79	Vijay 38 M S/O Manikkam, Kallukarampatti, Perungalur, Thanjavur OP: 013799	c/o headache – 9 months triggered by bending over, head movements	NORMAL	NORMAL	NORMAL	NORMAL	TRIGEMINAL NEURALGIA	MEDICAL	SUBJECTIVE IMPROVEMENT
80	Devidasan 30 M 200, Palabanandavanam Rukmaniammal madam	c/o headache – 1 yr frontal and occipital region	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	NOT IMPROVED

	CRC (Near) Thanjavur OP: 023841								
81	Amrutharani 34 F W/o Ilangovan 22, vellalaviduth post Karbakuditaluk. Pudukottai OP: 03192	c/o headache - 2 yrs vomiting h/o blurring of vision	DSL	DSL	NO SINUSITIS	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
82	Lakshmanan 39 M 256/12 Chennampatti, vallom OP : 17694	c/o headache – 1 yrs h/o pain forehead more at morning chronic alcoholic	NORMAL	NORMAL	NORMAL	NORMAL	ALCOHOLIC	MEDICAL	RELIEVED
83	Selvanath 55 M Manjanarikothai, Thanjavur. OP: 23410	c/o headache - 3 wks h/o nasal obstruction	DSL, congested nasal mucosa	DSL, congested nasal mucosa	DSL , SINUSITIS	NORMAL	DNS with SINUSITIS	SMR WITH FESS	NOT IMPROVED
84	Lalitha 32 f Karunayapattom 3, vadallore Margalore post Kantharvakottai OP:06845	c/o headache - 1yr frontal headache	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
85	Avinash 30, M Rajajinagar, Thanjavur. OP: 046732	c/o headache – 1 yr frontal and occipital region h/o vomiting	NORMAL	DSL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
86	Lakshmi 32 F Varappur, perungalur Pudukottai	c/o – headache – 4 days h/o giddiness	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT

	OP: 033221	h/o assault – 2yrs back (over parietal region)							
87	Silambuselvi 39 F w/o kamaraj Alakudi,Melaputturtheru Thanjavur OP: 021784	c/o headache - 4 yrs frontal region tenderness+ h/o eye pain	DSL	mild DSL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
88	Salaam 36 M 2nd street, rahimnagar Mohammed bardar Kalyanapuram OP: 017962	c/o headache - 2yrs h/o vomiting	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
89	Vasantha 32 f 175, idavallore kolippatti Thirukkattupalli OP:023671	c/oheadache - 3 yrs	DSL congested nasal mucosa +	DSL congested nasal mucosa +	DSL with SINUSITIS	NORMAL	DNS with SINUSITIS	SMR WITH FESS	RELIEVED
90	Vijayadarsini 19 f d/o sundaram 709/1 Tahikkani Vrandhakudikadan Orthanadu. OP: 129071	c/o headache - 1month h/o nausea	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
91	Saravanan 44 M 118,ammankoil Karukudi Thiruvaiyam OP: 028952	c/o pain over Rt side of face - 1 month no h/o nasal obstruction	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT

92	Puneethavally 38 F 4/926, south pookollai Medical college, thanjavur OP: 031456	c/o headache – 5 yrs no h/o nasal obstruction h/o vomiting h/o photophobia	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	NOT IMPROVED
93	Keerthiga 25 f No 7,veera nagar street Pillayarpetti thanjavur OP: 002389	c/o headache – 2yrs h/o common cold on & off	DSL congested mucosa	DSL congested mucosa	DSL with SINUSITIS	NORMAL	DNS with SINUSITIS	SMR WITH FESS	RELIEVED
94	Saroja 35 f 185/54 therkuthan Pallikondan Malaiyakadu post Athirampatti. OP: 038511	c/o headache – 4yrs h/o neck pain	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
95	Aakash 26 M S/o Sami 331/Athoppu street Thanjavur. OP: 087201	c/o headache – 1yr h/o nose block h/o cold on & off	DSL, Secretions	DSL	SINUSITIS	NORMAL	DNS with SINUSITIS	SMR WITH FESS	RELIEVED
96	Pakkeerisami 32 M S/o sakthivel, Alangudi Puthukottai. OP: 12672	c/o headache – 1 yr h/o nasal obstruction. h/o vomiting h/o photophobia	NORMAL	NORMAL	NORMAL	NORMAL	MIGRAINE	MEDICAL	SUBJECTIVE IMPROVEMENT
97	Senthil 30 M Cheyyamangalam, Thiruvaiyam.	c/o headache – 1 month frontal region	DSL, Congested mucosa	DSL	SINUSITIS	NORMAL	DNS with SINUSITIS	SMR WITH FESS	SUBJECTIVE IMPROVEMENT

	OP : 23137	h/o sneezing, nasal obstruction							
98	Abishek 30, M Municipal colony, Thanjavur. OP: 013623	c/o headache – 1 yr frontal and occipital region h/o vomiting	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	RELIEVED
99	Sebastian 32 M perungalur Pudukottai OP: 063012	c/o – headache – 2 yrs h/o giddiness h/o assault – 2yrs back (over parietal region)	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT
100	Tamilselvi 20/ F Ammanpettai, thanjavur. OP: 073673	c/o headache - 1 yr frontal region no h/o nasal obstruction h/o common cold on & off	NORMAL	NORMAL	NORMAL	NORMAL	TENSION HEADACHE	MEDICAL	SUBJECTIVE IMPROVEMENT